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General Editor: T. D. KENDRICK, M.A.

MIDDLESEX AND LONDON

THE COUNTY ARCHAEOLOGIES

General Editor : T. D. KENDRICK, M.A.
Assistant Keeper in the Department of British and Medieval Antiquities at the British Museum.

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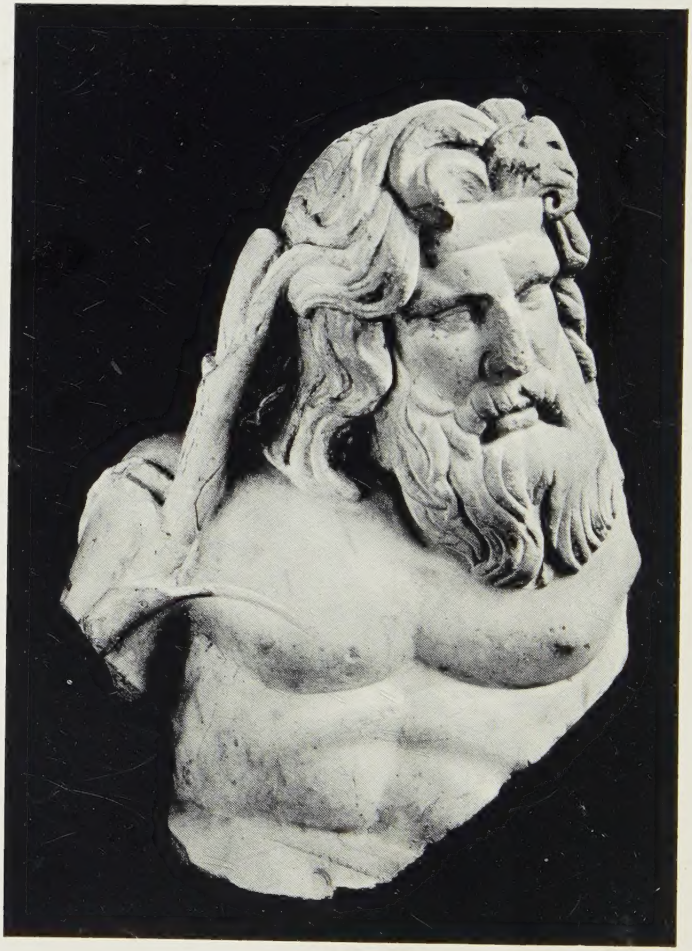

MARBLE FRAGMENT OF A RIVER-GOD FROM THE WALBROOK
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THE ARCHAEOLOGY OF MIDDLESEX AND LONDON

BY

C. E. VULLIAMY

WITH 59 ILLUSTRATIONS AND 2 MAPS

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PREFACE

THE present archaeological survey extends from the palaeolithic period to the date of the Norman Conquest and covers the region contained within the old boundaries of Middlesex. To a great degree, the archaeology of this district is the archaeology of the Thames. The ancient gravels of the Thames contain traces of remote prehistoric man ; and up the stream and along the banks of the later river came the raiders, traders or settlers who brought to our island new breeds and customs, new tongues and new industries from abroad. After the founding of Londinium in Romano-British times, the influences of the Roman civilization were rapidly diffused, and the site of Roman London presents an archaeological complex of peculiar interest and of many difficulties.

We have thought it proper to deal with the Thames antiquities as a whole, without regard to their position, or their alleged position, when found. Thus, for example, finds made in the river at Battersea, Mortlake or Wandsworth on the Surrey side are included with those discovered on or near the Middlesex bank.

Apart from the site of Londinium, the town or settlement on Brockley Hill (Sulloniacae), and a few scattered traces of different and often of uncertain periods, we are less concerned with what may still be seen upon the ground, or read of in early records, than with the many and various objects which are preserved in public and private collections. The beauty or rarity or meaning of such things can only be appreciated if we know something of the circumstances in which they were produced and of the people who produced them, and we have therefore

tried to give a part of that knowledge in introductions or comments.

We have endeavoured, as far as possible, to avoid the mention or description of pieces concerning whose place of finding there is any doubt, and we have made a practice of recording the locality of finds whenever this is known. At the same time, we have not, we hope, been too dogmatic on this point, and we have included certain fine or exceptional objects which, though without a definite history, were almost certainly found within our district.

The Gazetteer comprises a list of the principal sites and an inventory of the most noteworthy remains or objects. Naturally, the immense number of small objects of the Romano-British period found in London, and of all periods found in the Thames, cannot be included in the inventory. Finds which are not of sufficient importance to merit separate mention in the inventory, but which are of sufficient interest for a place in the text, can be traced by means of the Index.

Select bibliographies at the end of each chapter will, it is hoped, prove of use to those who wish to acquire a more specialized knowledge of the periods or subjects dealt with under their several headings. It has been our aim to admit to these short lists only such books as are of unquestionable authority or value.

The author desires to express his particular gratitude to Mr. Reginald A. Smith, Keeper of British and Medieval Antiquities in the British Museum ; Mr. T. D. Kendrick and Mr. C. F. C. Hawkes of the British Museum ; Professor Sir Arthur Keith, Curator of the Museum of the Royal College of Surgeons ; Professor G. Elliot Smith, University College ; Mr. J. L. Douthwaite, Curator of the Guildhall Museum, and Mr. Quintin Waddington, Assistant Curator ; Dr. R. E. Mortimer Wheeler, Keeper of the London Museum ; Mr. H. S. Kingsford, Secretary of the Society of Antiquaries of London ; Mr. A. K. Sabin, Curator of the Bethnal Green Museum ; Mr. J. P. Gaskin, Librarian to the Royal Anthropological Institute ; Mr. F. A. Turner, Curator of the Layton Collection, Brentford Public Library ;

Mr. Percy Thompson, Curator of the Essex Museum of Natural History; Mr. G. Bridgmore Brown, Secretary of the London and Middlesex Archaeological Society; Mr. H. J. E. Peake, F.S.A.; Mr. G. G. B. Fox, Mr. A. S. Kennard, Mr. G. F. Lawrence, Mr. T. H. Knowles, Mr. J. G. Marsden, and Mr. F. N. Haward, who have supplied invaluable information or have courteously made available their collections of local antiquities; and the Rev. A. R. T. Eales, M.A., who has provided useful notes on recent finds at Brockley Hill. Special thanks are due to Mr. J. G. Marsden for his kindness in reading through the proofs of the book.

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C. E. VULLIAMY

February, 1930

BIBLIOGRAPHICAL NOTE

THE number of useful and authoritative works dealing with the archaeology of Middlesex and the London area is surprisingly small, while, on the other hand, the number of unimportant books is relatively enormous. Of the older works, by far the most valuable is the first volume of *London* in the *Victoria County Histories* (1909), a source of information to which all later writers are greatly indebted. It gives a remarkably full inventory of the sites and relics of Roman London which were known at the time of its compilation, and a clear and well-illustrated account of the Saxon and Viking antiquities found in the City. The second volume on *Middlesex* in the same series (the first is not published) contains an article on the earthworks of the County which, though incomplete, is of some importance. This volume was published in 1911. On the subject of Roman London no other work can be compared with the *Inventory* of the Royal Commission on Historical Monuments (1928). This contains the fullest possible information on the topography of Londinium, and a reasonably complete summary of the outstanding archaeological material. The Introduction by Dr. R. E. Mortimer Wheeler is a perfect example of what such an introduction should be, and presents the result of combining supremely fine scholarship with an unlimited capacity for methodical research. There are various books of a popular type on Roman London and on the Romano-British period, and some of these will be found in the short bibliographies which are appended to the chapters of the present volume. Both from the historical and archaeological points of view, periodical publications are naturally of great importance. Of these,

we would draw attention, in particular, to the *Transactions* of the London and Middlesex Archaeological Society, which are invaluable as records of discovery; to the earlier volumes of the *Gentleman's Magazine*; to the *Archaeologia* (Society of Antiquaries of London), the most important archaeological journal published in this country; the *Proceedings* of the Society of Antiquaries, the *Antiquaries' Journal*, the *Archaeological Journal*, and the *Journal* of the British Archaeological Association. The chief value of the older books is that of catalogues and records rather than of sound historical or archaeological speculation. Among those who first wrote on the history and antiquities of London and Middlesex, Camden (1551–1623), Norden (1548–1625)—the inventor of county histories—and Stow (1525–1605) are pre-eminent. William Stukeley (1687–1765), whose *Itinerarium Curiosum* has many references to the antiquities of our district and many fanciful engravings of them, is wholly unreliable, but incorporates a certain amount of useful information. It is now the fashion to decry Maitland's *History of London* (1739), but the book has great value as a careful and accurate compilation of the available knowledge, and must command our respect as a monument of industry. Charles Knight's *London* (1841–1844) should also be mentioned. The works of Charles Roach Smith (1807–1890) are of permanent importance as records of antiquarian research and discovery on the site of Roman London, though his classification is now in many respects obsolete. Besant's well-known work (of which there are several editions) has the merits and the limitations of capable journalism, but is archaeologically out of date, and is by no means accurate in statement—the earlier periods are treated with a conspicuous lack of real knowledge. Some of the earlier works dealing with parochial districts contain a good deal of scattered, but none the less valuable, information: we would select, from these, *The History of Enfield* by W. Robinson (1823), The *History of Fulham* by T. Faulkner (1813), and the *History and Antiquities of Brentford* (1845) by the same author. To these may be added, *The History and Antiqui-*

ties of Hackney by Robinson (1842–1843) and *The History of Edmonton* (1819), also by Robinson. Among comparatively recent works having a definite archaeological or topographical value, *The History of Enfield* by C. W. Whitaker (1911), *Acton* by W. K. Baker (1912), *Annals of Ealing* by E. Jackson (1898), and *Hampstead Heath* by members of the Hampstead Scientific Society (1913) deserve special notice. It should be observed that the Royal Commission's work on Middlesex is now in preparation.

LIST OF ABBREVIATIONS

A.S. Chron.	Anglo-Saxon Chronicle. *Modern Language Texts,* edited by E. Classer and F. Harmer, 1926. Also in *Everyman's Library.*
Anthrop. Journ. . .	Journal of the (Royal) Anthropological Institute.
Antiq. Journ. . . .	Antiquaries' Journal (Society of Antiquaries of London).
Arch.	Archaeologia.
Arch. Journ. . . .	Archaeological Journal (Journal of the Archaeological Institute).
Brit. Mus.	British Museum.
Cat. Lond. Antiq. . .	Catalogue of London Antiquities, C. Roach Smith, 1854.
Coll. Antiq.	Collectanea Antiquua, C. Roach Smith, 7 vols., London, 1848–1880.
Essex Nat.	Essex Naturalist (publication of the Essex Field Club).
Evans, Bronze . . .	Ancient Bronze Implements of the British Isles, J. Evans, London, 1881.
Evans, Stone . . .	Ancient Stone Implements of the British Isles, J. Evans, 2nd ed., London, 1897.
Gent. Mag.	Gentleman's Magazine.
Guildhall Mus. Cat. .	Catalogue of the Guildhall Museum, 1908.
Hor. Fer.	Horae Ferales, J. M. Kemble, London, 1863.
Illus. Lond. News . .	Illustrated London News.
Illus. Rom. Lond. . .	Illustrations of Roman London, C. Roach Smith, London, 1859.
Itin. Cur.	Itinerarium Curiosum, W. Stukeley, 1776.
Journ. Brit. Arch. Assoc.	Journal of the British Archaeological Association.
Journ. Roy. Anthrop. Inst.	Journal of the Royal Anthropological Institute.
London and the Vikings	London Museum Catalogues, No. 1, 1927.
Lond. Topog. Record .	London Topographical Record.

Manuel	Manuel d'Archéologie Préhistorique, Celtique et Gallo-Romaine, J. Déchelette, Paris, 1908–1914.
Mem. Geol. Survey . .	Memoirs of the Geological Survey of England.
Num. Chron.. . . .	Numismatic Chronicle.
Orig. Celt.	Origines Celticae, E. Guest, London, 1883.
Proc. Geol. Assoc. . .	Proceedings of the Geologists' Association.
Proc. P.S.E.A. . . .	Proceedings of the Prehistoric Society of East Anglia.
Proc. Soc. Antiq. . .	Proceedings of the Society of Antiquaries of London.
Quart. Journ. Geol. Soc.	Quarterly Journal of the Geological Society.
Rom. Antiq. Nat. Safe	Roman Antiquities discovered on the site of the National Safe Deposit Company's Premises, J. E. Price, London, 1873.
Rom. Brit.	Romano-British, Roman Britain.
R.C.H.M. Rom. Lond. .	An Inventory of the Historical Monuments in London, Vol. III, Roman London, by the Royal Commission on Historical Monuments, London, 1928.
Trans. Lond. and Msx. Arch. Soc.	Transactions of the London and Middlesex Archaeological Society.
V.C.H. Lond. . . .	Victoria County History, London, Vol. I, London, 1909.
V.C.H. Msx.	Victoria County History, Middlesex, Vol. II, London, 1911.

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‡ *Reproduced from 'Proceedings of the Society of Antiquaries', by permission.*

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THE ARCHAEOLOGY OF MIDDLESEX AND LONDON

CHAPTER I

TOPOGRAPHY AND GEOLOGY

WHEN Norden wrote his account of Middlesex in Queen Elizabeth's day, he pictured a green, fruitful county, graced by noble houses and their pleasure gardens.

'Towardes the time of Haruest, a man may behold the fields round about, so sweetly to addresse themselves to the sicle, and sith, with such comfortable aboundance of all kind of graine, that the husbandman, which waiteth for the fruits of his labours, cannot but clap his hands for ioy. . . . This shire is plentifullie stored, and as it seemeth beautified with manie faire, and comely buildinges, especiallie of the Merchants of LONDON, who haue planted their houses of recreation not in the meanest places; which also they haue,cunningly contriued, curiously beautified . . . inuironed with orchards of sundrie delicate fruites, gardens with delectable walks, arbers, allees, and great varietie of pleasing dainties.'

So, in harmonious prose, Norden celebrated the little shire which, bountiful by nature and made yet more comely by the artifice of man, might be compared for beauty and fertility with any other shire of England.

The face of Middlesex has changed indeed since Norden's time. Its pastoral charm has gone. Even its natural features are obscured, partly by the amazing and horrible progress of the speculative builder, and partly by the development of what is termed commercial enterprise, to say nothing of the growth of London itself. A very considerable part of its area is now wholly industrial and

fearsomely ugly. Yet it is still possible to distinguish the main characters of the Middlesex landscape : to the north, the gently undulating, well-timbered region of the London Clay, with hills capped by pebbles or sand ; to the south, the dreary undiversified plains of the Thames gravels and the brick-earth ; and between the two, the broad level tracts which were once so fertile.

The highest point within the county of Middlesex is at Stanmore, where the boundary, for a short distance, passes above the 500 feet contour-line. Thence a ridge of high country stretches eastward to Mill Hill and Chipping Barnet (which lies outside the boundary), and then swings up across the west of Enfield Chase to Potter's Bar. Rising from the low land between Uxbridge and Hendon, the hill of Harrow, crowned by the graceful spire of the church, looks down towards the Brent valley, with the little knoll of Horsendon below it. Further to the east, the pleasant rolling ground of Hampstead and Highgate stands above the northern fringe of London.

Next to Rutland, Middlesex is the smallest county in the British Isles. According to Gough, it does not exceed 24 miles in length from east to west, and is barely 18 in breadth from north to south, and only 93 in circumference. It is bounded on the east by the Lea and its reservoirs, on the south by the Thames, on the west by the Colne with its canals and ditches, and on the north by a curiously meandering border-line. The great loop of this border-line, enclosing Enfield Chase and curving round so as to exclude Chipping Barnet, is due to manorial interests.

The present volume deals with the archaeology and early history of the district within these boundaries—the old administrative and geographical area of the County, including London north of the Thames and west of the Lea. (By an Act passed in 1888, the parishes of Hampstead, Islington, St. Pancras, Hackney, Paddington, Kensington and Hammersmith, together with the other London boroughs and parishes in our district, were absorbed in the administrative County of London.)

Relatively small, this area contains, perhaps, more that

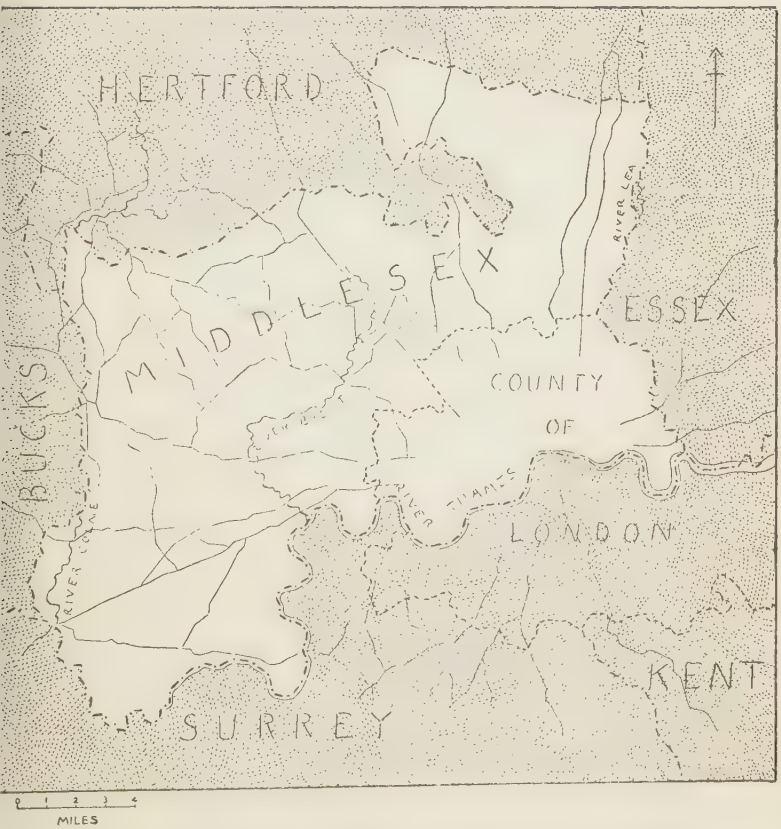


FIG. 1.—COUNTY OF MIDDLESEX, SHOWING BOUNDARIES

is of interest, and in some respects a greater variety and abundance of archaeological material, than any other district of equivalent size in the whole of Britain. Here —though in scenes and climates altogether unlike those of to-day—palaeolithic man chipped his stone implements, and watched (with alarm or with eagerness) the grisly or fierce bear, the great elk and the mammoth. Here, in a much later age, lived the men who polished their flint axes and settled near that broad and friendly river which is now called the Thames. Later still came the bronze-workers, and then the skilled craftsmen who spoke a Celtic tongue and who are the first Britons of recorded history.

Across the fords of Middlesex the troops of Caesar carried the arms and ambitions of the Roman Empire. Nearly a century afterwards, Aulus Plautius drew the lines round his camp on a hill by the riverside, at a place where his transports, moving easily up the tidal stream, could be moored in a safe and serviceable creek. On this hill, a year or so later, the town of Londinium came into being.

In the dark confusion which followed the break-up of the Roman Empire the history of London is obscured. But we know something of the bitter struggle with Pict and Scot, with Jute and Saxon, and we know how the Romanized Britons were overcome by the new invaders. Then, in their turn, the Saxons had to face the problems of defence ; the long-ships of the Vikings, full of sturdy and well-armed heathen men, rowed past the walls of London and up the Thames, and there was little peace in the land until the more settled days after the Norman Conquest.

Before we proceed to examine our archaeological material, it is well that we should form some idea of the geology and topography of our district. Archaeological evidence has little interest for most of us, unless it can be more or less clearly associated with the people whose needs or aspirations have produced that evidence ; and we cannot appreciate the human value of archaeology without some understanding of the scenes and climates of the prehistoric and early historic ages. We shall therefore describe the

main geological features of Middlesex. By doing so, we shall see how the stage was prepared for the men who, in the dim ages of antiquity, were moving slowly forward on the long road of human progress.

The principal formation which gives the region its general character, and everywhere underlies it at varying depths, is the Chalk. It is the great concave fold or syncline of the Chalk which has determined the form of that extended hollow which is generally known as the London basin, though it might be more fittingly described as a trough. To the north-west the edge of the trough rises by a slow gradient to the escarpment of the Chilterns ; to the south it ascends to the rolling ridges of the North Downs. The Chalk is a deep-sea deposit (limestone ooze) laid down at a depth of not less than 400 fathoms in tranquil water. It is a fairly homogeneous deposit, but contains, in places, beds or bands of flint—siliceous nodules caused by the decay of organisms charged with silica, such as radiolaria, diatoms and sponges. That, at least, is the usual theory concerning the origin of flint ; but flint is a mysterious substance, and the chemistry of its production is not yet clearly understood.

The sea in which the Chalk was deposited probably extended some distance to the west of the present limit of the Chalk and submerged the lower slopes of the Pennine Chain and of the Welsh Mountains. In the London area the thickness of the Chalk varies to a marked degree. It does not here attain the depth which is recorded elsewhere : between Leatherhead and Guildford, for example, it is 817 feet thick, and near Brighton 958 feet. The celebrated well-boring at Meux's Horseshoe Brewery at the southern end of the Tottenham Court Road, in 1877, revealed a thickness of 655 feet ; in the White Heather boring at Willesden 590 feet were recorded, and at the Metropolitan Electric Works at the same place 517 feet ; while 702 feet at Southall represent the maximum proved thickness in this area.

Above the unbroken spread of the Chalk the features of the later landscapes have been carved or moulded, worn

or washed away. Drift or deposit, flood, erosion, rivers and thawing ice have played their part in making the present land-surfaces of the London area, and we are chiefly concerned with the geological changes subsequent to the laying down of the Chalk. But we may note, as a matter of some interest, that fifteen or sixteen deep well-borings, in or near London, have passed through the Chalk and proved the age and form of the underlying strata. The boring at Meux's reached, for the first time, at 1,066 feet below the surface and 981 feet below Ordnance Datum, the platform of Devonian rock which probably extends beneath the whole region. Within our district the Palaeozoic or Primary rocks, represented by Devonian strata, have also been reached at Southall, in two separate borings at Willesden, at Chiswick and at Kentish Town. The boring at White Heather, Willesden, is the deepest recorded in the district, and reached the amazing total depth of 2,000 feet, passing down through 902 feet of Devonian rocks.

We have now to consider the building up of the surfaces above the Chalk. We shall thus be able to form an idea of the changes which eventually produced the landscapes of prehistoric times, of the earliest human period. For us, the geology of that period has a peculiar interest, since it bears directly upon some of the most fascinating and most difficult problems of man's early existence and experience.

After the deposit of the Chalk, which, as we have seen, took place in deep and tranquil waters, a phase of elevation brought this deposit above the level of the sea. Following its emergence as a new land-surface, the Chalk was naturally subjected to the action of rains and floods, of heat and cold—forces which are always at work changing and shaping the face of the earth. In this way the chalky surface was eroded, but not to a very considerable extent. Nor was the Chalk exposed above what is now the London basin for any great length of geological time. In the lower Eocene period (many millions of years ago) a marked and perhaps a relatively rapid change was taking place, and

this area was again depressed beneath the level of the sea, while, on the other hand, the Wealden area of Kent was being raised above it. The main features of the London basin, as we know it, were thus prepared. At this time, the so-called ' London Tertiaries ' (or Lower London Tertiaries, as they are more correctly described) were being laid down in comparatively thin strata in shallow waters.

The oldest of these Tertiaries is the Thanet Sand, which is nowhere seen at the surface in Middlesex, and extends below only a small part of the district. (According to Bromehead, the limit of the Thanet Beds runs approximately through Hendon, Ealing, Sunbury and Weybridge.) It was deposited under shallow marine conditions, and in this region does not appear to exceed 40 feet in thickness.

A period of deeper and more prolonged submersion is marked by the laying down of the Woolwich and Reading Beds over the entire district. These beds are present everywhere beneath the London Clay, and where they spread beyond the limits of the Thanet Sand they lie immediately upon the Chalk, as at Southall, Harrow and Harefield. The series is mainly represented in our area by the Reading Beds. Generally speaking, the Woolwich and Reading Beds are heterogeneous and variable deposits, in part marine, in part fluviatile or estuarine. The Reading Beds consist of sands which are light in colour—white, grey, and sometimes crimson—of clays and pebbles, with occasional concretionary masses of grey-wether sandstone (sarsen) and pudding-stone. At Ickenham, Ruislip and Pinner, the Reading Beds appear as a mass of mottled clay. Part of the reservoir at Ruislip is cut in the Reading Beds, and an inlier of irregular shape may be traced at Pinner. The Beds may also be clearly seen at Harefield, and elsewhere in the upper part of the Colne valley, where the lower Eocene deposits rest conformably on the Chalk.

These Lower London Tertiaries—Thanet Sand and Woolwich and Reading Beds—lie between the much deeper and heavier spreads of the Chalk below and the London Clay above. Geologically they are mere episodes, preparing the way for the great event of Eocene times in our

district : the laying down of the London Clay. Naturally, the thickness of the Reading deposits is never considerable, and may be taken as varying, roughly, from 20 to 50 feet.

The main Eocene subsidence, marked by the deposit of the London Clay, probably sank the whole of South-Eastern England below the level of the sea, finally submerging the uplifted mass of the Kentish dome. The sea of the London Clay was a warm sea, and the shores of it were covered by a vegetation that was essentially subtropical. So extensive and so uniform a deposit as the Clay cannot be ascribed wholly to ' the mud of an ancient river ', and Jukes-Brown was probably right in describing it as ' a purely marine deposit '.

From the physical and economic points of view, the London Clay is the most important component of the district. Apart from the river valleys, the mild features of our Middlesex landscapes are modelled by erosion from the great overspread of the Clay. On this Clay, within the last few years, a very considerable suburban population has learnt something of the advantages and drawbacks of living on a surface of Eocene mud. Our London ' tube ' railways are driven, for the most part, through this ancient mud, which, by reason of its structure and immovability, is well suited for such purposes. In structure it is firm and tenacious, strongly resistant to water and of a fairly even composition. We are accustomed to see it as a dull yellow substance, remarkably uniform in colour, but this appearance is due to a surface change : the peroxidization of the protosalt of iron which gives a bluish, slaty or indigo colour to the deeper clay. The brown or ochreous colour of the oxidized clay at the surface becomes barred, streaked or mottled with blue-grey patches at a depth of 20 feet or so, and passes finally into the lower masses of dark grey or blue. The lowest, or basement, bed contains débris of the shingle beaches and sand dunes which were swept away by the advance of the sea. It is a sandy bed full of black flint pebbles, and with occasional layers of sandstone. Fossils occur most frequently in theba sement bed, but they are unevenly distributed. Of these fossils, shells

are the commonest, and are found in some abundance at Highgate ; but there are also to be found crustaceans, fish, crocodiles, birds, mammals, and, in some places, subtropical plants. The faunal remains, according to Prestwich, indicate a moderate climate ; but the flora is definitely tropical. Prestwich assumed a quiet and gradual subsidence of the bed of the sea, and observed that ' the increasing depth caused by the subsidence appears to have been constantly neutralized by an accumulation of sediment, equal, or nearly so, to the amount of the depression '.

In addition to fossils the Clay contains objects which are popularly known as cement stones—concretions of argillaceous limestone which occur here and there in isolated layers. These cement stones are known to the geologist as *septaria*, because, when the nodules crack open, the cracks are filled with calcite and thus form ' septa ' or partitions. There is no doubt that they owe their origin to the accumulation of carbonate of lime round decaying organisms ; fossils are often found in the broken nodules. They were actually used by the Romans for making cement. Septaria may be regarded as characteristic products of the London Clay, and their presence has more than once proved conclusively the nature of the deposit in which they were found. Although the Clay itself rarely shows stratification, an indication of bedding is sometimes given by these concretionary nodules.

Selenite (crystallized gypsum) is occasionally found in the Clay, and so is iron pyrites, and very rarely a fossilized resin known as copaline.

The thickness of the London Clay, a factor of much importance both geographically and economically, varies more than might be supposed in the case of such a massive and settled substance. A thickness of 400 feet, though it can be assumed with confidence, has not yet been actually proved by boring within our district. The deeper deposits would seem to be on the south side of the Thames : ' about 400 to 450 feet ' are recorded at Esher, and 430 feet at Wimbledon. According to Mr. C. E. N. Bromehead ' a well-section at Brentwood seems to indicate a thickness

of 391 feet beneath Claygate and Bagshot Beds; another at South Weald 371½ beneath Claygate Beds only'.[1]

Beneath London, and in its immediate vicinity to the north and west, the Clay has been deeply eroded. In the Meux boring in Tottenham Court Road its thickness was only 64 feet; but at Covent Garden Market, only about half a mile to the south-east of the Meux Brewery site, we have 135 feet. In the well-boring at the Hampstead Brewery in 1878 the shaft was driven through 353 feet of the Clay. A remarkably low figure—18½ feet—is given in connection with a boring at Enfield.

This main event of Eocene times—the laying down of the London Clay on the steadily sinking floor of the sea—was succeeded by the final shallow-water marine episodes of the Bagshot Sands and the Bracklesham Beds.

Intermediate, however, between the London Clay proper and the last Eocene deposits we have a formation known as the Claygate Beds consisting of alternate layers of sand and clay. As a geological event, it is difficult, perhaps, to separate the laying down of the Claygate Beds from the succeeding phase of the Bagshot Sands, and they must certainly be regarded as of transitional character. In common with the Bagshot, Bracklesham and Barton series they were deposited in the waters of a shallow sea, a sea that was here being filled and silted up by the material carried into it by a great river. The Claygates were so named by Mr. Henry Dewey of the Geological Survey in 1912, and are recognized as a distinct formation. In colour they are characterized by lilac and pink or brownish-purple clays. Their greatest thickness appears to be at Hampstead, where it is not far short of 100 feet, and they may also be seen immediately below the Bagshot Sands at Harrow, where the thickness is about 50 feet.

The shapely eminences of Hampstead, Highgate and Harrow are all capped by the last Eocene deposits—the Bagshot Sands, laid down under shallow marine or perhaps even lagoon conditions. Although the Bracklesham and Barton Beds (particularly the former) are closely associated

[1] *Mem. Geol. Survey, Lond. Dist.*, 1922, p. 26.

with this formation, their exact position is sometimes a matter of doubt, and their identification by no means easy. For our present purpose we need not take them into account.

The Bagshot Beds consist of fine white, buff and sometimes crimson sands, with occasional clay and loam, and localized masses of flint pebbles. Their predominant character in a landscape is that of a white, dry sand, rather thinly spread out. Their full thickness, in all probability, does not exceed 120 feet. The actual thickness estimated at Hampstead by Whitaker was from 60 to 80 feet, but, according to the most recent *Geological Memoir* (Bromehead, 1922), this must have included the Claygate Beds. Acting as filters and sponges above the impenetrable masses of the London Clay, the Bagshots provide a dry surface and ensure a ready water supply. These advantages account for the residential development of Hampstead and Highgate, for the once celebrated wells of the former, and for the pleasing name of the Vale of Health. The typical Bagshot landscape of heath and pinewoods may be seen on the westerly parts of Hampstead Heath, especially, perhaps, in the wooded area to the west of North End. On either side of the Spaniard's Road the sands have been extensively dug, and the Road has thus been given the appearance of a raised causeway.

Although the main features of the London basin were doubtless determined, or at least foreshadowed, by the raising of the Wealden heights in Eocene times, it was not until long after the final subsidence of the Eocene sea, and the consequent re-elevation of the land, that those features were definitely established. Our district has no geological evidence certainly attributable to the succeeding periods of the Oligocene and the Pliocene. (It is conceivable that the pre-glacial pebble-gravels of Stanmore and Mill Hill may be of Pliocene date.) We may infer a steady upheaval in Oligocene times, accompanied by the scouring and eroding action of rivers and of heavy rainfalls. Then, during the early part of the Pliocene period (Diestian), another depression took place, but probably

without carrying the greater part of the surface of this area beneath the sea. Following this came a new phase of elevation, the dip of the London trough was definitely produced, and through this valley from west to east flowed a large river, passing out to the north-east to join the waters of a larger river which is now represented by the Rhine. The great Pliocene river, flowing through the

FIG. 2.—DIAGRAMMATIC SECTION THROUGH THE LONDON BASIN
CH, Chiltern Hills; H, Hampstead; L, London; C, Croydon; ND, North Downs; 1, London Clay; 2, Lower Tertiaries; 3, Chalk; 4, Upper Greensand; 5, Oxford Clay

London trough a million years ago, was the forerunner of the Thames.

We have now reached the post-Pliocene period, a period for which the unsatisfactory term Pleistocene has been invented, and for which the even more unsatisfactory term Quaternary is still sometimes employed. The reader must be reminded that we have attempted to summarize in a few words the geological and geographical changes of several millions of years. Somewhere in the Pleistocene period man came into existence. Geologically, however, the appearance of man is but the addition of a new fossil; the great geological event of post-Pliocene times is the Ice Age.

It is generally supposed that the Ice Age in western Europe consisted of four principal episodes or periods of maximum glaciation, alternating with periods of moderate temperature, and followed by a series of oscillations of diminishing intensity and extent. That is now accepted as a working hypothesis, and we need not here concern ourselves with the doubts and disagreements of those who have closely studied the glacial phenomena.

Our own district lies just below the southern border of the ice-sheet which, at the time of the maximum severity of the Ice Age, covered the greater part of the British Isles. But a thrust or travelling mass of ice pushed down

as far as Finchley, and glacial gravels occur in many parts of the district, notably at Harefield and Hillingdon. (It may be noted that patches of glacial gravel cover the high ground on Kingston Hill and Wimbledon Common, on the south side of the Thames, thus marking the southern limit of such gravels in the London area.)

The chief glacial feature of our district is the mass of Boulder Clay which covers practically the whole of the Finchley area. This Boulder Clay extends north as far as Wheatstone, and has been found in cemeteries at Islington, St. Pancras, and Marylebone. Boulder Clay is of a grey-blue colour, tough, sticky and impervious, and full of stones of all sorts and sizes. At the surface, or after exposure for any length of time, it appears as a brown loamy substance. It consists partly of material which has been sheared off the immediate land-surface by the passage of the ice, and partly of foreign or imported materials carried by the glacier from other points higher up the line of its flow. The stones and fossils in the Finchley Boulder Clay are from various formations, notably Jurassic and Cretaceous, including large lumps of chalk which have certainly come from the Lincolnshire district. The Clay itself is no doubt largely formed of the compressed and half-frozen masses of the London Clay on which the ice rested. It forms a deposit of variable thickness, but is not known to exceed 35 feet in this area. There is good reason to believe that the glacier, of which the Boulder Clay is the residual deposit, did not reach the high ground of the Bagshot hills of Hampstead and Highgate, but divided, sending an arm into the Brent valley as far as Hendon.[1]

The melting of the Finchley ice scattered its miscellaneous contents, as well as a large part of the material squeezed and frozen beneath it, mostly in the form of mixed gravels, over a considerable part of the district. Material which is thus distributed by thawing ice is exceedingly hard to classify, and the problems of the Middlesex gravels, and those of the Thames trough in general, are neither few nor easy. Matters are complicated by the

[1] Bromehead, *Geol. of N. Lond.*, p. 36.

fact that an older series of glacial gravels had already been distributed before the Finchley glaciation, and the Finchley ice actually rested on a group of these older gravels.

The exact dating of these fluvio-glacial deposits is hardly possible, nor is it always easy to distinguish between them and the high-level river deposits. A glacial origin is held to be proved by the presence of Bunter quartzite pebbles (rounded, smooth stones, often chosen by the neolithic folk for the making of their pierced hammers and ' mace-heads '), and it is certainly proved by the presence of Scandinavian erratics, which sometimes occur here, as in the Brent valley. The so-called ' Middle Glacial ' gravels beneath the Finchley Clay are found to contain, besides Bunter quartzites, many rocks and fossils from the Jurassic, and also pebbles of chert, flint and ironstone, blocks of sarsen and puddingstone, probably of local derivation. Elsewhere, the glacial gravels contain occasionally jasper and lydite, and various components derived from the Chalk, Lower Greensand, Eocene strata and Diestian beds. These gravel deposits are never more than a few feet in thickness.

For the benefit of those using the coloured geological maps of the district, it should be noted that the pink patches on the older maps, which were discreetly marked as Plateau Gravels of various ages, are now marked with more confidence, and it may be assumed with greater accuracy, as Glacial Gravels.

From early post-Pliocene times a river flowed eastward through the London trough and began to carve out the older features of the Thames valley. This valley, with its terraces of gravels and brick-earth, is intimately associated with the lives of the first men who inhabited our district, and with the long succession of prehistoric races that followed them. The study of the Thames river deposits, bringing us into close touch with the men of the palaeolithic age, and showing us their actual handiwork, is therefore of supreme interest. Unfortunately, it presents many difficulties.

The general history of the Thames during later Pleistocene times may be described as a history conditioned by a

series of upheavals, followed by a period of gradual subsidence which is still continuing. At the time of its greatest expanse from bank to bank the river laid down the deposits on what is termed the High Terrace. With continued elevation of the land and a corresponding increase in the gradient of its bed, the river cut its way down to a lower channel, leaving the High Terrace above it, and forming the deposits of the Middle Terrace. Similarly, with a still greater elevation of the surface, another cut was made to a still deeper and narrower channel, and the Middle Terrace was eventually left high and dry. The last downward cut of the river, reaching, in our district, a level from 60 to 100 feet below the present level of the sea, left behind it the Low, or Flood Plain Terrace. There is nothing dffii-

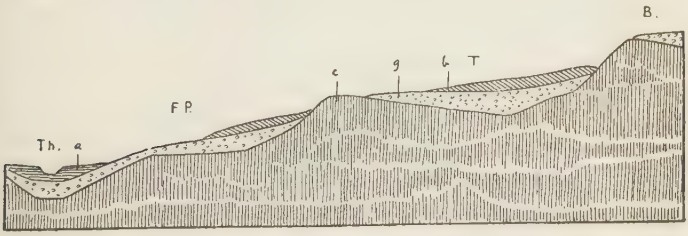


FIG. 3.—DIAGRAM SHOWING RIVER TERRACES OF THE THAMES
B, Boyn Hill Terrace; T, Taplow Terrace; FP, Flood Plain Terrace; TH, Thames; *c*, Clay; *g*, Gravel; *b*, Brick-earth; *a*, Modern Alluvium

cult to understand in the mechanism of these changes, but the actual results are so confusing, and so much obscured by minor occurrences, that the study of the Thames gravels is admitted to be one of unusual complexity.

At one time it was assumed that there were four terraces; some geologists numbered them from the top and others from the bottom. This led to confusion; and there was often considerable doubt as to which were actually the gravels of the highest terrace. The two most distinct terraces were then named the '50 foot' and the '100 foot' respectively; but this again was obviously misleading, and the identification of the higher terrace with the typical gravels of Boyn Hill and of the middle with the Taplow

gravels was greatly to be preferred. At the present day, when only three terraces are definitely recognized, it is usual to refer to them as the High (or Boyn Hill), the Middle (or Taplow), and the Low (or Flood Plain).

But although the difficulty of nomenclature may be thus overcome, the real difficulty—that of recognizing the terraces and of assigning to each its typical human industries—remains. Downwash, the tendency of gravels on a higher terrace to slide over those of a lower one, the action of floods, the crumbling of the banks, and the recent commercial activities of man have all helped to obliterate the line of the terraces and to jumble together their constituents. Nor are matters made easier by the spread of that peculiar loam known as brick-earth, which often forms a continuous sheet overlapping two terraces, or by the movement of Trail or contorted drift—to be considered later.

Although the Middle (Taplow) Terrace can be correlated with a well-marked phase of palaeolithic (Old Stone Age) culture, we shall make no attempt to correlate the Thames gravels as a whole with the glacial periods. It may be assumed, however, that the High Terrace belongs to a period subsequent to that of the maximum glaciation, represented by the Finchley Boulder Clay.

The river gravels of our district are composed almost entirely of flints, derived principally from the older and higher gravels, but with an admixture of quartz and quartzite pebbles, and with glacial erratics (including the Bunter quartzites) and occasional sarsen stones. There are fine specimens of sarsen stone at Hounslow and Hanwell, and sarsens have been found also at Bayswater and Kensington. Sand is interbedded with the gravel in irregular strips, pockets or layers, sometimes of considerable thickness. The streaks of blackened material, so familiar to those who study the sections of gravel exposed in pits, are due to the presence of manganese—a hydrated oxide, usually accompanied by ferric oxide. This manganese may have been derived from the chalk, and carried by water in the form of manganese carbonate.

In thickness, the mass of the Middle Terrace gravels, which are the most continuous, and archaeologically the most important, together with their associated beds of sand, varies from two or three to 35 feet or more, but a thickness of 40 feet is rarely exceeded. Pitt-Rivers found that the gravels at Acton were usually 6 to 12 feet in depth; but he noted 18 feet in 'Acton village'. Thirty feet of gravel have been proved by excavations in Berners Street, Oxford Street. The author has recently seen a fine section of the gravel at Hanwell which is not less than 24 feet in depth.

The gravels are, or were, overspread very extensively by the loamy 'inundation mud' known as brick-earth. In places, and indeed over large areas, this has now been almost wholly removed for the making of bricks and tiles. The brick-earth is a mixture of sand and clay, composed largely of washed-out London Clay, Bagshot Sands, and other Eocene beds, and it seems to have been laid down over the gravels under sustained flood conditions, in very slow-moving or even sequestered waters. It is sometimes described as ancient alluvium. In constitution it varies from sandy loam to clay, and much of it is little more than re-arranged London Clay mixed with reddish or dull yellow sand and containing a few small stones or pebbles. As with the gravel, its thickness varies widely. At Ealing Common it is only about 5 feet in depth, but at Arlington Road, Ealing, 20 feet of brick-earth were exposed. At East Acton, where it sometimes lies directly upon the London Clay, the thickness is about 10 feet; in the Lea valley, east of Forty Hill at Enfield, 12 to 14 feet; and at Lower Edmonton, 7 feet. Elsewhere in North-East London it has been observed to attain a thickness of 30 feet.

The brick-earth belongs mostly to the later period of the Middle Terrace, with the gravels of which it is closely associated.

It should be remembered, when looking at the geological map, that the Thames never, at any one time, spread across the whole valley from terrace to terrace. The river has

cut many channels through its basin, and the terraces mark, not its greatest width at a given time, but the northern and southern limits of its meandering. It is of course true, however, that the Thames of Boyn Hill and Taplow times covered a relatively large part of the entire valley, and was a vastly broader river than the Thames of to-day.

The Boyn Hill or High Terrace has been worn and eroded away in the better part of the district, and its gravels occur only as patches or outliers. Of these, the most considerable is that to the south of the village of Hillingdon; at Hillingdon Heath it is found at a level of about 160 feet. A small outlier occurs at Castlebar Hill, Ealing, and there are patches near the right bank of the Brent at Wembley (Kingsbury Church stands on the most northerly of these patches). The layers of Boyn Hill gravel at Islington, Highbury, and on the site of the Metropolitan Cattle Market, though presumably a part of the Thames group, may perhaps belong to the High Terrace gravels of the Lea, as those at Bush Hill, south of Enfield, and those near Palmer's Green and Wood Green certainly do.

The gravels and brick-earths of the Middle or Taplow Terrace stretch in an almost unbroken sheet across the southern part of our area. To us, they are of extraordinary interest, for they contain innumerable flint implements of palaeolithic date, with evidence, in at least two places, of actual settlement; and although, with one possible exception, they have provided us with no human fossil, they have provided a good series of the fossil remains of the animals that lived on this ancient land-surface with prehistoric man.

We may assume that the Low Terrace or Flood Plain gravels are in part contemporaneous with the last glacial period. They cover the greater part of the area through which the Thames now flows, and are overlaid, in the immediate vicinity of the river, by its alluvium. The Low Terrace has been studied on the site of the New Admiralty Buildings in Whitehall by Mr. Lewis Abbott

and at Ponder's End, near Enfield, by Mr. Hazzledine Warren—in the latter case the Low Terrace was that of the Lea. Mr. Warren compared the climate of the Ponder's End stage to that of Lapland to-day, and he described the contemporary landscape as ' a bleak, almost treeless region, largely covered by moss when not under snow, and with little more considerable in the way of vegetation than the stunted bushes of the Arctic willow and the Arctic birch, even these being half hidden in the growth of moss '.[1]

The general distribution of the Taplow, brick-earth and Flood Plain deposits in our area, taken from the west side of the Lea valley to the east side of the valley of the Colne, may now be summarized.

A broad strip of Flood Plain gravels, with brick-earth and patches of the Middle Terrace gravels above it, borders the west side of the Lea valley, but the Lea brick-earth is sharply divided from the Thames deposits just below Tottenham by an eroded arm of the London Clay. Middle Terrace gravels cover the greater part of East London (including practically the whole of the City area) from Ludgate north-east to Upper Clapton, rising to the brick-earth (or what is left of it) at Highbury, Stoke Newington and Stamford Hill; thence down to Bromley Station; then in a south-westerly direction to a point near the Commercial Gas Company's works; and then due south towards the river. At Stoke Newington the gravels reach a thickness of 20 feet, and 18 feet have been measured at Basinghall Street in the City. The Tower Hamlets, Bromley and Limehouse stand upon a broad stretch of Low Terrace gravels, and the Isle of Dogs consists of comparatively recent alluvial mud. Another spread of the Taplow gravel covers a large part of the western and central areas of London, from Holborn to Paddington, and from the southern border of Regent's Park to Hyde Park Corner. The gravel has been proved to be 30 feet thick at Berners Street, 22 feet at Tottenham Court Road, and 20 feet at Holborn. In making the tunnel for the Metropolitan Railway, great thicknesses of gravel were met with

[1] *Quart. Journ. Geol. Soc.*, LXVIII, p. 213.

between Paddington and Euston Square. In Hyde Park the gravel is bisected by a strip of London Clay in which the Serpentine is cut. The gravel, which does not appear to extend far north of the Bayswater Road, is again cut across by an eroded strip of London Clay at Holland Park, and is thus separated from the brick-earth of Shepherd's Bush and the Flood Plain Terrace of Kensington.

Another narrow strip of London Clay, lying between Piccadilly and St. James's and reaching towards the Strand, separates the Taplow gravels from the Flood Plain deposits which extend from St. James's Park to Charing Cross, and thence in a narrowing stretch to the valley of the Fleet. The slope from the one terrace to the other is clearly seen by the dip of the Haymarket and St. James's Street and of the area between them. The Flood Plain gravels are here really continuous with the main spread at Kensington, from which they are separated by the comparatively recent alluvium of the Tyburn upon which Buckingham Palace is built. St. James's Square and Trafalgar Square are built upon these Flood Plain deposits, and the island of Thorney at Westminster, upon which stand Westminster Abbey and the Houses of Parliament, is an isolated mass of Flood Plain gravels.

The areas of Lower Hammersmith, Earl's Court, Walham Green, Fulham and Chelsea are covered by Flood Plain gravels, which also spread over the Chiswick salient.

At Ealing and Acton the gravels of the Middle Terrace are overlaid, in places, by the brick-earth. The main spread of the brick-earth, which is so marked a geological feature of the district, extends from the Southall region to the northern boundaries of Hounslow and Hounslow Heath, with another great mass stretching from Hayes to Harlington and from Harmondsworth to Yiewsley, with an extension up the Colne valley as far as Uxbridge. South of the main spread of the brick-earth, the Taplow gravels reach from Longford to the Staines reservoir; thence in a south-easterly direction to Hampton, whence they spread north to Hounslow and the Brent valley. The greater part of the region between Staines and Hampton is covered by

the Low Terrace gravels, with patches of brick-earth. These gravels, indeed, follow the north bank of the Thames with little interruption across the entire district, but the alluvial bay at Westminster should be noted (marking the outlet of the Tyburn), and also the broad strip of alluvium which, in the heart of the City, shows the old course of the Walbrook.

The fossils of the three terraces, belonging as they do to different periods of the Palaeolithic or Old Stone Age, are naturally of much interest. They have been observed and recorded scientifically at least as far back as 1813, when ' tusks of the hippopotamus ' and horns of oxen were found in the gravel at Brentford.[1] And we shall see later how, in the seventeenth century, ' the Body of an Elephant ' was discovered in the Gray's Inn Road.

In the Boyn Hill deposits we find the remains both of the straight-tusked elephant (*Elephas antiquus*) and of the mammoth (*Elephas primigenius*). That these two sorts of elephant co-existed in South Britain has been proved by various discoveries, notably those at Ilford ; but it should be remembered that the straight-tusked elephant is generally associated with a warm climate, and the mammoth with a cold one. The same gravels contain the bones of the urus (*Bos primigenius*), of the wild horse (*Equus caballus*), of the red deer (*Cervus elaphus*), the reindeer (*Rangifer tarandus*), the wolf (*Canis lupus*), the narrow-nosed rhinoceros (*Rhinoceros leptorhinus*), the wild boar (*Sus scrofa*), the giant beaver (*Trogontherium Cuvieri*), the vole (*Microtus*), and the field-mouse (*Mus sylvaticus*).

The Taplow Terrace also contains many of the above, but includes new arrivals, notably the grisly, horrible or fierce bear (*Ursus ferox, horribilis*), the roe deer (*Capreolus caprea*), the hippopotamus (*Hippopotamus amphibius*), the musk ox (*Ovibos moschatus*), and the woolly rhinoceros (*Rhinoceros tichorhinus*). Remains of the mammoth are frequently found in this terrace.

On the level of the Flood Plain deposits we find the lion (*Felis leo*), the spotted hyena (*Hyaena crocuta*), the

[1] T. Faulkner, *Hist. of Brentford, etc.*, 1845.

reindeer in abundance, the great elk (*Cervus megaceros*), the antelope (*Saiga tartarica*), the aurochs (*Bison bonasus*); and we observe the so-called Celtic short-horn (*Bos longifrons*) making his first appearance. Mammoth remains are common in the Low Terrace gravels, but perhaps not so frequent as those of the reindeer.

As regards the distribution of these fossils throughout our area, little need be said. The discovery of such things is necessarily fortuitous, depending very largely upon the intelligence, curiosity and observation of workmen and their overseers. Flood Plain lions have been found in Trafalgar Square, and also on the site of the old *Daily Chronicle* offices in Fleet Street, and a rhinoceros from the same horizon has been found in Pall Mall. A hippopotamus was unearthed in Waterloo Place, and a rhinoceros at the Old Bailey. The most westerly find of a mammoth recorded in our district was at Staines. At Twickenham the Low Terrace gravels have yielded bones of the wild boar, wolf, reindeer, bison, red deer, and *Bos longifrons*. It may be noted that the making of roads and the building of houses in the southern part of the County frequently bring to light the remains of extinct animals, and that such remains are revealed, from time to time, in the gravel-pits. We can hardly say that, in this respect, one area is more productive than another.

A fine collection of Middle Terrace fossils was made during excavations at Endsleigh Gardens and Endsleigh Street, south of Euston Station, where Mr. Henry Hicks found the remains of mammoth, wild horse and red deer. The finding of mammoth bones and fragments of teeth and tusks is a fairly ordinary occurrence wherever the Taplow gravels are worked or exposed, and many such finds have been made at Ealing, Acton, Southall, Hounslow, and in North-East London. We shall have occasion, later, to deal with some of these finds when we are describing the flint implements with which they were associated.

Before concluding our geological survey we have to mention the occurrence of a rather mysterious phenomenon known as Trail, and represented by a contorted or undu-

lating drift, moving down the slopes and valleys towards the Flood Plain. The period of this drift is certainly later than that of the Middle Terrace, for, in some places, it overlies the deposits of that Terrace with little disturbance. It appears to have been caused by the downhill movement of partially thawed masses, crawling or sliding in a semi-liquid form over the Terrace gravels, and bearing with them the mixed, rolled and bruised material of many different ages and localities. Sometimes it has dragged up the underlying deposits (particularly in its passage over the London Clay) and rolled or folded them into curiously distorted forms. It has often carried the deposits of one terrace over those of the terrace below, and has thus added greatly to the difficulties of the field worker. The extent and occurrence of the Trail have not been adequately studied. A great mass of it seems to have pushed down the Lea valley and to have overwhelmed the palaeolithic ' floor ' at Stoke Newington, and another but thinner mass rolled over a floor of the same date at Acton. It is often found in the London Clay district above the river terraces —as at Wembley, where it contained the bones of a hippopotamus. In all probability it is related to the period of the Low Terrace and to the glacial phenomena of Ponder's End.

The period of time represented by the laying-down of the Thames gravels from the Boyn Hill to the Flood Plain Terrace—a period of not less than one hundred thousand years—was characterized by marked changes of scenery and climate. During the warmest interglacial phase, a growth of jungle and forest probably overspread the entire region ; but the advance of the ice brought about conditions of arctic severity and rendered the district uninhabitable. Fossil remains, found in the gravels which contain examples of human work, prove that man lived close to the river—in early times a very broad river with many islands and backwaters—in company with animals typical both of warm and of cold climates, and at times with a ' mixed fauna ' showing both types living together at the same period. Animals belonging to the warm group

such as the urus and the straight-tusked elephant, adapted themselves to the conditions of a glacial or pre-glacial age, and were associated with the arriving animals of the cold fauna—the mammoth and reindeer. In the course of time, species became extinct, or withdrew to more congenial places, and other species made their appearance. The Flood Plain gravels, belonging partly to a period which immediately precedes one of locally severe arctic conditions, give evidence of a wide range of climate, passing, indeed, from the one extreme to the other; for we have here the bones of lion and hyena, elk and reindeer, in the same terrace deposits.

Fanciful reconstructions of prehistoric life have no great value. The most that we can do is to indicate, as well as we can, the general conditions under which prehistoric men lived, and to describe the surviving traces of their handiwork. Anything beyond this is mere conjecture. But our evidence shows clearly enough that the Palaeolithic people of our district lived first of all in a warm to sub-tropical climate, close to a wide river fringed by the dense and luxuriant growth of a great forest—a landscape which may be compared with that of a Central African river of to-day. In the forest moved herds of enormous elephants and of wild oxen—terrifying and dangerous neighbours. The cold periods which followed, after thousands of years, brought about a complete change. Jungle and forest disappeared and gave place to a dreary tundra landscape, bare, bleak and misty, covered by frequent snow, swept by icy rains, and with sparse and stunted vegetation. Between these two extremes were periods of temperate climate, with a corresponding mildness and variety of scene.

For Further Reading : W. Whitaker, *Geology of the London Basin*, 1872; *Geology of London*, 1889; H. B. Woodward, *Geology of the London District*, 1909; C. E. N. Bromehead, *Geology of North London*, 1925; C. E. N. Bromehead and H. Dewey, *Geology of South London*, 1921 (Memoirs of the Geological Survey of England); *Gentleman's Magazine Library of English Topography*, Pt. 7, 1896; W. Jerrold, *Highways and Byways in Middlesex*, 1909.

CHAPTER II

PALAEOLITHIC MAN IN MIDDLESEX

IN June, 1859, after a memorable visit to France, Sir John Evans (then Mr. John Evans) read a paper to the Society of Antiquaries in London. He had not long returned from Abbeville, where, in company with Sir Joseph Prestwich, he had been examining the flint implements found by Boucher de Perthes in the valley of the Somme. Those discoveries marked the beginning of prehistoric archaeology. And, in stating his own conviction, Evans exhorted his listeners to search for these implements in their own country, where, already, a few had been found by hazard. ' A new field ', he said, ' is opened for antiquarian research, and those who work in it will doubtless find their labours amply repaid.'

By the following year, the great antiquity of the Somme implements was fully recognized in this country by Falconer, Prestwich, Evans, Flower and Lyell. It was still denied by many scientists on both sides of the Channel; and in 1863 we find Elie de Beaumont declaiming passionately that he could never believe that man had co-existed with the mammoth, and suggesting that the palaeolithic hand-axes were of Roman origin. In this country, scandalized people wrote letters to the *Athenaeum*, and other respectable papers, expressing the same views.

The search for palaeolithic implements in the gravels of Middlesex does not seem to have been seriously undertaken much before 1865. In 1866, Mr. G. H. Gaviller, looking through some gravel on Hackney Common, made the first discovery of a palaeolith in North-East London.

Stone implements of palaeolithic date had been found

in England long before; as, for example, the celebrated hand-axe from Gray's Inn unearthed towards the end of the seventeenth century (Pl. I); but until their discovery in the river drift of the Somme, unmistakably associated with the bones of animals which had long been extinct in Europe, neither the true age nor the full meaning of those implements had been even dimly apprehended.

Here we shall do well to remind ourselves of one or two essential points.

During the infinitely greater part of his existence as a distinct species, man has been living in what is termed the Old Stone Age—the Palaeolithic of archaeology. Comparatively speaking, we of the present day have but recently emerged from the prehistoric stage of society. On a strictly conservative estimate, the early palaeolithic races of Europe, with a fully evolved technique in flint-work, were living in the mild climate of an interglacial phase at least one hundred and fifty thousand years ago. A much earlier stage of humanity is supposed to be indicated by certain rudely chipped flints called eoliths—a word as ugly, vague and ill-contrived as the material with which it is associated. We do but mention eoliths in order to state that none, so far as we know, have yet been produced within our district. The archaeology of the County begins definitely with the first and earliest division of the Palaeolithic—the period of Chelles. It is probable that the most ancient implements of this period (an immensely long one) are some two hundred thousand years old. The Chelles period, in common with those which succeed it, is named from a French type-station: Chelles (Seine-et-Marne), about 12 miles due east of Paris. Following the period of Chelles, but not distinctly separated from it, and characterized by the development of Chelles types of implement, comes that of St. Acheul, so named from a suburb of Amiens; and then the period of Le Moustier, the name of one of the most famous prehistoric sites in France, the cave of Le Moustier on the right bank of the Vézère (Dordogne).

The representation of the Chelles period in this district,

though unmistakable, is meagre, and to some extent fortuitous. But the periods of Acheul and Le Moustier —particularly the latter—are well shown by a large series of fine implements and flakes.

The typical implement of the earlier palaeolithic stages is variously described by the French term, *coup de poing*, and the English term, hand-axe. There are obvious objections to both terms, but they have now acquired the sanction of custom and the merit of convenience. In the present volume we shall use the term hand-axe exclusively.

Hand-axes are chipped out of a suitable nodule of flint, and are so designed as to provide a serviceable point at one end and a good thick grip for the hand at the other. In its earlier form, the hand-axe is roughly pear-shaped, and a part of the crust or cortex of the nodule is often left untouched at the grip end. The length of typical hand-axes may be taken as varying from 4 to 6½ or 7 inches, but forms both larger and smaller are not infrequent. A fine specimen, 9 inches long, was recently found at Yiewsley, near West Drayton ; and the author has one from Hanwell which is only a little over 3 inches in length. As the later forms are evolved, a cutting edge is produced, at first wavy and erratic but afterwards carefully curved or straight, which eventually passes right round the implement. At this stage the hand-axe is flattened and has an oval or cordate (heart-shaped) outline, the crust is worked off, and the implement is often a work of rare beauty and precision.

Taken together, the periods of Chelles and Acheul probably lasted for considerably more than 100,000 years.

The period of Le Moustier is characterized by the use of flakes, and of implements struck off prepared cores and worked only on one face. We shall discuss the manufacture of these implements in our next chapter. The older hand-axe gradually becomes obsolete, after passing through a transitional form (La Micoque), and the typical instrument is the ' point '—a flake-tool, used as a scraper on each side alternately. The phase of Le Moustier, a shorter

phase than those which preceded it, probably had a duration of some 30,000 years, and the men of Western Europe may have entered that stage 50,000 years ago.

Implements of the Lower Palaeolithic—Chelles and St. Acheul types—are sometimes referred to as Drift or River-drift implements. The term is misleading. It implies too close an association between palaeolithic man and the river terraces; whereas the plentiful discovery of implements in those terraces is due in the first place to the fact that the terraces are exploited commercially, and surfaces

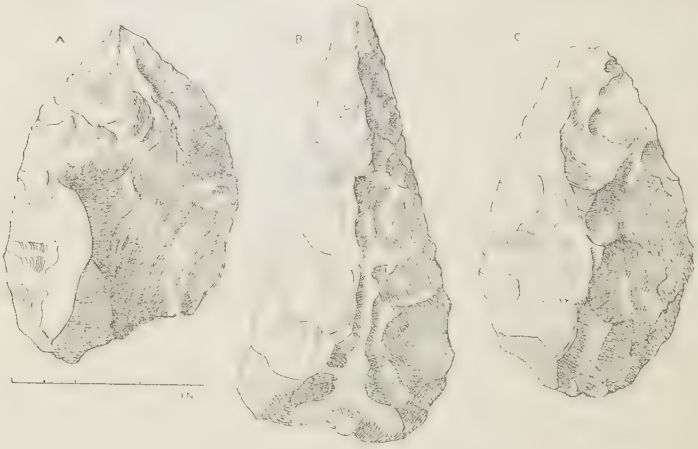


FIG. 4.—PALAEOLITHIC IMPLEMENTS FROM N.E. LONDON
A, Le Moustier; B—C, St. Acheul
Sturge Collection, British Museum

are thus exposed concerning which we should otherwise have but little knowledge. Palaeolithic man certainly lived in the neighbourhood of rivers, but he was equally free to live elsewhere, and did so.

In like manner, but now with far less excuse, Le Moustier flints are spoken of as belonging to the 'Early Cave' period. The first discoveries of these flints were certainly made in caves, but many of the most important and most extensive Le Moustier sites have been found in places where caves never existed (as in our own district), and

the idea of a whole race living in caves, at any time and in any place, is, of course, absurd. Caves were excellent ready-made shelters, occupied by the relatively small number who were lucky enough to live in their neighbourhood and strong enough to hold them. To live in a cave was a distinction rather than a habit.

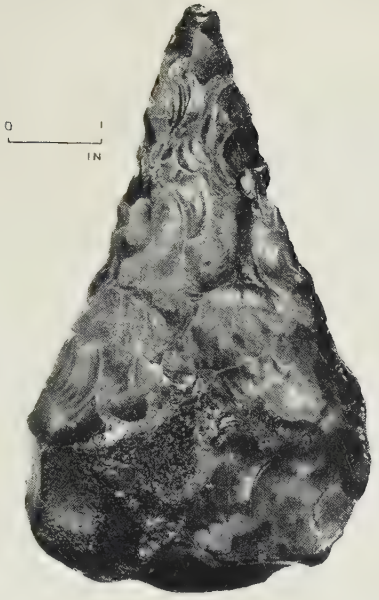
The first palaeolithic implement discovered in this country is the hand-axe, referred to above, which was found late in the seventeenth century, opposite Black Mary's in the vicinity of Gray's Inn Lane, and described as ' a British weapon '. The site of the discovery is now in the King's Cross Road near Granville Square, where the gravels are of Taplow date. Bones of a mammoth —in all probability a complete skeleton—were found at the same time, and correctly recognized as those of ' an elephant '.

A shockingly careless engraving of this implement accompanies a letter on the antiquities of London by Mr. Bagford, dated 1715, and printed in Hearne's edition of the *Collectanea* of Leland. Bagford says that the implement was found by Mr. John Conyers, an apothecary (the same Conyers who wrote the well-known account of the Roman pottery kilns on the site of St. Paul's). Conyers, he says, found ' the Body of an Elephant, as he was digging for gravel in a Field near to the Sign of Sir John Old-Castle in the Fields, not far from Battlebridge [King's Cross] and near to the River of Wells. . . . How this Elephant came there ? is the Question.' He then describes the hand-axe as ' a Flint Lance like unto the Head of a Spear, fastened into a Shaft of a good length '. It need hardly be said that the shaft is a pure fiction.

The implement itself is now in the British Museum. It is a fine specimen, about $6\frac{3}{4}$ inches long from butt to point, and is probably of late Chelles date. When Sir John Evans read his paper in 1859, he drew attention to this implement, which was then, apparently, the only one of its kind to be seen in the national collection. Excavations in Gray's Inn Lane in 1883 and 1884 resulted in the discovery of several palaeolithic flints.

Flint implements of the palaeolithic period are widely distributed throughout the river gravels of the entire district. In London they have been found in great numbers at Stoke Newington, Kingsland, Highbury, London Fields, Shacklewell, South Hornsey, Stamford Hill, Upper and Lower Clapton, Homerton, Dalston, Hackney, and Mildmay Park. They have occurred also in the City, at Clerkenwell, Shoreditch, Drury Lane, Chancery Lane, Fleet Street, the Kingsway, Covent Garden, Great Russell Street, Woburn Square, Oxford Street (Peter Robinson's), Wigmore Street, Vere Street, Great Portland Street, Mount Street, Berkeley Square, Hyde Park, and Marylebone. Some admirable specimens come from Piccadilly Circus, from the site of the Regent Palace Hotel and from Glasshouse Street. In the Thames itself, palaeolithic implements, derived from the higher gravels, have been found near Wandsworth, Battersea, Hammersmith, Putney and Richmond. Numerous and important finds have been made outside the inner London area at Acton, Ealing, Hanwell, Southall, Dawley, Hayes, Yiewsley and West Drayton—indeed, in practically every place where the gravels and brick-earths have been exposed, whether in pits, in commercial excavations, or in digging for drains and the foundations of houses. Large numbers of these implements have naturally found their way into the hands of private collectors, and have never been published, and an even greater number must have been thrown aside, unnoticed, by workmen.

The colour and condition of implements and flakes found among the Thames gravels in this district varies greatly. Those of the oldest period (Chelles) come from the Boyn Hill Terrace, or from the remains of that terrace which have been washed down over the later deposits. As they have generally been carried for some distance by the action of floods or torrents, the sharp and clean edges of the original flaking have been worn away, and the implements are then technically known as ' rolled ' or ' abraded '. Such abrasion, however, is not in itself a proof of period, and is quickly produced in loose material which is subjected



HAND-AXE FOUND AT GRAY'S INN
British Museum

IMPLEMENT OF EARLY TYPE, GRAY'S INN
British Museum

PLATE I

to the action of running water. Axes of the comparatively recent neolithic period have been found in the Thames with completely abraded surfaces. On the other hand, implements of the Taplow Terrace (Acheul and Le Moustier types), which are sometimes found on or near the ancient land-surfaces where they were made and used, are often in remarkably good condition, with edges as keen, shapely and efficient as when they were first chipped.

The colour changes which take place in flint are very imperfectly understood. After prolonged exposure, the original black, grey or honey-colour of a flint becomes mottled, patched, clouded, barred or streaked by a white film which is known as patina. The ultimate tendency of patina, which consists of a chemical disintegration of the outer rind of the flint with increasing susceptibility to the agencies of patination, is to produce an even porcellaneous whiteness. In its intermediate or partial stages, patina gives the flint a bluish, milky or dappled appearance, or sometimes a reticulated marking like basket-work, and the effects of patination are often exceedingly beautiful.

Once a flint has become patinated, it is liable to a further process of coloration, especially if, as very frequently happens, it is buried in contact with iron oxides, such as commonly occur in ur gravel deposits. The colour which results from this process, and which is due simply to the action of the oxidized elements upon the whitened or partially whitened surface of the flint, ranges from a pale yellow to a warm, rich brown, with intermediate shades of deep ochreous yellow, red-yellow and brownish-red, and is now generally, and rightly, described as a stain. It differs, both in its method of production and in effect, from true patina, and we no longer speak, as the older archaeologists did, of ' ochreous patination '.

Perhaps it is safe to say that patina is essentially a process of weathering and of exposure to agencies which operate on or near the surface of the ground (a ' sub-aerial ' process), while stain is essentially the result of prolonged contact below the surface with oxidized minerals, particularly with hydrated oxide of iron. The small yellowish

or brown spots which are often found on flints picked up on the surface are supposed to be due to the fortuitous transfer of rust from such things as horseshoes, boot-nails and ploughshares: that is probably the case in some instances, but there is little doubt that the same effect is also produced by the dispersal of ferruginous elements in the soil.

The palaeolithic implements of Middlesex exhibit most varieties of stain and of patina. Flints of unchanged appearance are comparatively rare, but some of the fine flakes of Le Moustier date show little alteration.

It must be remembered, however, that patina is seldom an indication of locality or level, and never a certain indication of period. Its evidence may be confirmatory, but is not in itself decisive. Occasionally, it may prove whether the flaking of a flint is all of one period, or whether it has been retouched or damaged at a date very much later than that of its original manufacture. We may be inclined to over-estimate the time which is required for the production of patina, and we may fail to take into account the very obvious fact that patina is purely the result of circumstances, and that circumstances are not constant. We shall do well to remind ourselves that flints of the Bronze Age may be deeply patinated (like the barbed arrowheads of the Cotswold Hills), and that flints of early palaeolithic date may show no patination whatever. Neither stain, patina, nor abrasion, taken either singly or together, can afford positive proof of age.

Within the last sixty or seventy years, many thousands of palaeolithic implements and flakes have been found in the river deposits of Middlesex, generally in the gravels, but also in the overlying brick-earths. Of these, by far the greater number are of Taplow age—that is, they are definitely associated with the Middle Terrace of the Thames. The archaeological periods which they represent are those of Acheul and Le Moustier, with a marked predominance of the later of these two periods. In two separate places —Acton and Stoke Newington—the existence of 'working-floors' of Le Moustier date has been proved, and

flints of this date appear to be everywhere present in the Taplow gravels. Nor are they confined to these gravels. Le Moustier man, wandering over the higher ground above the river, left his implements and traces of his work behind him ; and the result is, that flints of the Moustier period are found at all levels and in varying conditions. Some are fresh, clean-cut, and little changed in colour. Others are rolled, patinated or stained. Some are found *in situ*—that is, at or near the place where they were made or used—and others have been carried by flowing drift or flood-water, by down-wash or thawing snow, from the higher surfaces.

In like manner, the more ancient implements of the Boyn Hill Terrace have a varied, and often a violent, history. The main terrace, as we have seen, no longer exists, in this area, as a well-marked and continuous feature. Its gravels and other constituents have been scattered and re-distributed over the lower levels ; and we thus find that the comparatively rare implements of Chelles date are nearly all much battered and abraded. We find also, in places, that implements of different periods are jumbled up together, and in such cases both archaeologist and geologist are compelled to admit their perplexity. It is certainly a fact that Chelles implements, belonging originally to the High Terrace (for it cannot be doubted that the Middle Terrace is entirely of post-Chelles date), may be found on any of the lower levels ; one of these, much rolled, has been found in the Thames at Hammersmith, and another at Wandsworth. Human and natural agencies have thus combined to bring about a state of archaeological confusion, and the placing of specimens, particularly if the circumstances of their finding are not carefully recorded, is often a matter of difficulty, and in many cases impossible.

And there is another consideration which, in all practical work in the Middlesex gravels, must be continually borne in mind. Every one with any real experience of field-work in this district knows that, while the occurrence of typical forms, assignable at first glance to their period, is relatively infrequent, the occurrence of indeterminate or casual forms, and of chipped flakes which might belong to almost any

period, is common enough. A few well-directed blows would suffice for the making of a good edge or a serviceable point, nor would a high degree of finish, or the careful standardization of form, be required for the simple needs of every-day life. By far the greater number of the worked flakes do not conform to any particular type, and were obviously chipped in a few seconds for some immediate and ordinary purpose. Too much attention is paid to the finely worked specimens, which any capable archaeologist can identify in his study, or which any collector can arrange prettily in a show-case, and too little to the infinitely more numerous but not less interesting forms which, taken in groups, afford most valuable evidence of prehistoric industry and of prehistoric life.

Here we may note that implements bought from workmen have practically no scientific interest unless they are accompanied by accurate information as to the place and level at which they were found. Such information is rarely available. The interest of the workmen is not scientific, but frankly commercial; and specimens are freely carried from one place to another, in accordance with the possibilities of a ready market.

Apart from this, classification is made yet more difficult, in the case of isolated finds, by the tendency of the archaeologist himself to limit the period of the occurrence of a given type. For example, the appearance of remarkably fresh and perfect hand-axes, of a kind at one time associated exclusively with the Chelles period, in gravels of the Middle Terrace at Piccadilly, once caused a certain amount of uneasy speculation. Yet the difficulty here was less one of real evidence than of dogma. Chelles and Acheul are purely archaeological divisions of prehistoric time (if, indeed, they can be accepted as divisions of time in any sense) and are based on purely archaeological evidence. We are probably too ready to believe that type succeeds type by a process of general exclusion, and too little disposed to recognize the persistence of earlier forms in later periods. It is reasonable to suppose that the Piccadilly hand-axes are all of Acheul date.

But, in speaking of the difficulties which are connected with research among the river gravels of our district, we must not convey the idea that such research has not produced clear and definite results. On the contrary, these gravels have contributed largely to our knowledge of prehistoric man in Britain. The investigations carried out by Mr. Worthington Smith at Stoke Newington and by Mr. Allen Brown in the neighbourhood of Acton have an almost classic importance in the history of British archaeology.

The earliest methodical investigations recorded in our district are those of Colonel Lane Fox (afterwards General Pitt-Rivers) at Ealing and Acton. In those districts, between 1869 and 1872, he observed carefully the excavations which were made when the foundations of houses were being prepared. It is unfortunate that he did not often publish illustrations of his finds, and some of his descriptions are now rather difficult to follow. Many of his observations were made in Chaucer Road, and during the digging for the foundations of East Acton villas. Here, on the 60-feet level, he found many flakes and small scrapers ' all of surface type and of a dark colour ', and two implements which he described as also of ' surface type ' in the gravel itself. In Alfred Road he found a much-rolled ovate implement (presumably Acheul), lying on the surface of the London Clay beneath an undisturbed layer of sand. In Lorne Terrace he discovered an unusual number of implements, and the tooth of a mammoth was found in the same place. To the north of Chaucer Road he found many flakes, ' remarkable for the sharpness of their edges ', in seams of white sandy clay 9 feet below the surface, under gravel and brick-earth. These belonged, almost unquestionably, to a working-floor of Le Moustier date. (The term ' floor ', in prehistoric archaeology, means a clearly defined level with traces of human occupation—such as flint flakes knocked off in the making of implements, hammer-stones, cores, and material ready for the worker.) He found, in all, about 22 implements and 160 flakes. ' The forms . . . vary between the oval

and the pear-shape . . . nearly all were rounded, and left with the natural surface of the flint at the butt-end, only one having been found at Acton roughly chipped to an edge at the end.' [1] Even in those early days forgers were active, and workmen used to make implements which they finished off with a coat of varnish, and then buried—to be dug out and offered to the Colonel.

About six years after Pitt-Rivers' discoveries the first real impetus was given to the study of palaeolithic man in Middlesex by the fine work of Mr. Worthington G. Smith at Stoke Newington. His attention had been directed to that particular district by the publication in Sir John Evans' *Ancient Stone Implements* of a palaeolith found at Highbury New Park in 1868 by Sir John's son, Norman.

Worthington Smith was a man exceptionally well fitted for archaeological research. He was an able though not a distinguished writer, a keen observer, and a good draughtsman. Between 1878 and 1883 his investigations in North-East London produced results of the highest importance. He wrote occasional accounts of his work for scientific periodicals, and in 1894, after he had made his well-known discoveries at Caddington in Bedfordshire, his book, *Man the Primeval Savage*, was published by Stanford. This book, illustrated by his own admirable and careful drawings, is noteworthy both as a personal record and as a history of archaeological performance. That part of it which deals with the traces of palaeolithic man in North-East London is certainly of more than local interest, and may be properly described as a valuable contribution to knowledge ; and the fanciful portions are at least not more irrational than the flights of our modern writers.

In 1878, Worthington Smith first noticed the existence of a palaeolithic working-floor at Stoke Newington, revealed by excavations on the south side of the Common, and he soon afterwards traced it in fields and market gardens on the north side of the Common as well. Subsequently, he found the floor at Kingsland, Highbury, London Fields, South Hornsey, Abney Park Cemetery, Stamford

[1] *Geol. Journ.*, XXVIII, p. 449.

Hill and Shacklewell. Upon this floor or ancient land-surface there was found ' an immense accumulation ' of implements. These were of late Acheul and early Le Moustier types, with a predominance of Le Moustier forms. Large numbers of them were unused, with keen edges and shapely points, as they were left by the men who had made them. Flakes which had been struck off in the manufacture of implements were found everywhere, and in some cases they could be fitted together again. A

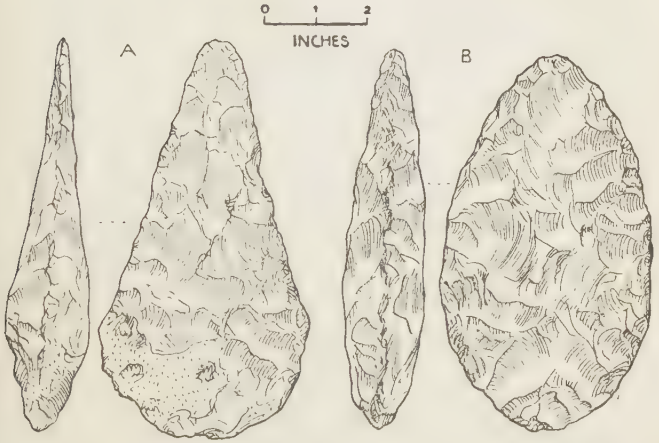


FIG. 5.—IMPLEMENTS FROM NORTH-EAST LONDON

spread of Trail or contorted drift lay above the floor, containing flints of more ancient form derived from the higher surfaces and considerably abraded. The level of the floor varied from 2 to as many as 30 feet below the surface. Beneath it was a deposit of heavy stones, resting on the London Clay, with implements of ' the oldest type '—probably of Acheul date—with a few Chelles specimens rolled down from the High Terrace.

After the appearance of Worthington Smith's first article in the *Journal* of the Anthropological Institute, public interest was directed towards these discoveries, and made itself evident (as it so often does) in a singularly

unfortunate manner. Palaeolithic implements were then objects of much greater rarity than they are at present, and were more eagerly sought after. It might, perhaps, be said that they came into fashion. Credulous collectors and persuasive dealers flocked to Stoke Newington. The workmen were pleased, and astonished, to find that chipped flints were saleable. They seemed to regard Worthington Smith as a man who had been surreptitiously removing things of no small value, and concealing this value from people who had as good a right to them as he had. He was ' threatened with personal violence '. Forgeries were turned out by the hundred; genuine implements were taken from one place to be sold at another; landladies took flints in lieu of rent; and publicans exchanged them for beer. A new industry, almost a new profession, came into existence. Some of the forgers, who were highly expert, acquired individual celebrity and were able to command good prices for their work. Whatever was in demand was produced; whatever was shown was copied with great skill. Lustrous and beautiful surfaces were made by the violent application of hard brushes; the forged implements were abraded (if abrasion was desired by customers) by being shaken together in a sack, and they were stained in iron saucepans full of rusty nails and boiling water. When it was found that the stain of rust, though pleasing to the eye, could be washed off, the tools were polished after boiling and then re-boiled—which made the colour almost permanent.

The most productive areas of the working-floor were uncovered during building operations in the Alkham, Kyverdale, Osbaldeston and Fountaine Roads. The digging for foundations in this district was continued for five years—from 1878 to 1883—and from these excavations many hundreds of implements were obtained, as well as innumerable flakes. Smith also found many implements on the Essex side of the Lea, but the greater number came from the Middlesex gravels, and he procured, in all, over a thousand palaeolithic tools. Some remarkably fine ones came from Upper and Lower Clapton, Dalston, Homerton,

Hackney, and Mildmay Park. In a published account of these discoveries,[1] Worthington Smith stated that he found ' thousands of flakes ' in the neighbourhood of the Hackney Brook, and he offered to send specimens of these, as gifts, to any one willing to pay carriage. He got a few implements, in addition, from various parts of the City, from Gray's Inn Lane, Drury Lane, and Clerkenwell.

An early recorded find of a palaeolith in London was made in 1883 by Mr. G. F. Lawrence, who found a hand-axe in Clerkenwell Road, ' near the Session House ', weighing 1 lb. 3 oz., and measuring just over 6½ inches in length.[2] This fine implement was acquired by Worthington Smith and presented by him to the British Museum. It is stained a dull yellow, and is in excellent condition. We reproduce it here (Pl. II).

Broken bones, antlers and teeth were found on the palaeolithic surface at Stoke Newington, as well as branches and twigs from trees, and even leaves. Two stakes of birch, found on the floor at Stoke Newington Common, were supposed to have been intentionally pointed : they are exhibited in the British Museum.

One of the most interesting problems connected with the Stoke Newington floor, and with other sites of the same character, is that of the supposed flight of the palaeolithic workers. They would seem to have left the place hurriedly, leaving behind them great numbers of good, unused flint tools. Worthington Smith pictured them as flying before the advancing mass of the Trail ; but there is no reason for believing that the Trail descended like a flood or an avalanche, since it flowed over the floor without causing any serious derangement of what lay upon it, without damaging the fine edges of the implements, and without displacing little accumulations of flint chips. There is no evidence here of a sudden catastrophe. At the same time, the hasty abandonment of things carefully and skilfully made, and consequently of value, is not easily accounted for.

The Stoke Newington gravels were also explored, during

[1] *Nature*, XXV, p. 460. [2] *Ibid.*, XXIX, p. 15.

the period of Worthington Smith's researches, by Mr. J. E. Greenhill.

'In 1881', he wrote, 'I found near Stoke Newington Common . . . close to the bed of the Hackney Brook, two long pointed implements, rivalling the workmanship of the Danish Neolithic tools. These two proved the forerunners of some 200 or 300 implements, besides thousands of flakes which fell mainly into the possession of Mr. Worthington Smith and myself. All these implements and flakes found at a particular level were quite unabraded, many of them lustreless, and in fact presenting the appearance of having just left the hand of the workman.'[1]

In 1883 he found others of the same kind in Ayrsome Street, Stoke Newington—evidently an exposure of the floor.

Worthington Smith paid a few visits to gravel pits at Hanwell in 1878, and to the railway cuttings at West Drayton in 1880, but without making any important finds.

The name which is most closely associated with palaeolithic research in Middlesex, apart from the North-East London area, is that of Mr. J. Allen Brown.

In 1885, Allen Brown discovered a palaeolithic working-floor at Creffield Road, Acton, and he published a preliminary account of this in January of the following year.[2]

He found evidence of three successive land-surfaces of palaeolithic date in the Creffield Road excavations: one at 11 to 12 feet below the present ground-level, one at 8 feet, and the floor itself at 6 feet. These layers do not seem to represent periods separated from each other by any great lapse of time, and the implements found in all of them are unrolled. Brown collected some 500 implements, flakes and fragments in Creffield Road, mostly from the level of the floor at 6 feet. He found the greater number of them in an excavation which was only 30 feet by 12 feet in extent. Some of these flakes and implements were patinated, and afterwards mottled or stained, others were black, and others were white or bluish-white. Some were partly covered with black dendritic markings, due

[1] *Proc. Geol. Assoc.*, VIII, p. 336.
[2] *Journ. Geol. Soc.*, XLII, p. 192.

to the crystallization of peroxide of manganese. He regarded the stain, rightly, as due to ' an accident of position ' rather than as an indication of age. There can be no doubt as to the period of the floor, since all the flakes and implements are of definite Le Moustier type, and were all found within a small area.

From the evidence of other finds, Brown was inclined to believe that the same floor could be traced to Freeland Road, Hamilton Road, and Gordon Road, and he found other flints of Le Moustier type at Beaconsfield Road,

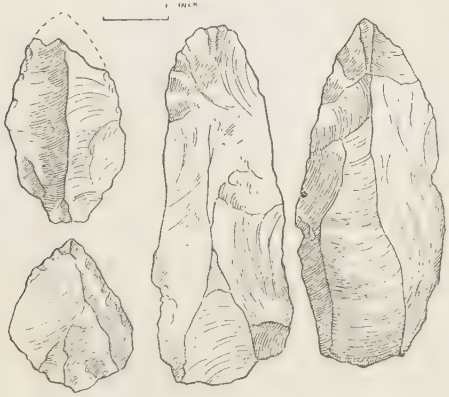


FIG. 6.—FLAKES AND IMPLEMENTS FROM THE WORKING-FLOOR AT CREFFIELD ROAD, ACTON

Grange Road, and Grove Road, Ealing. In common with Pitt-Rivers, he sometimes mistook the Taplow gravels for those of the Boyn Hill Terrace. By far the greater number of the flints which he collected and the sites which he explored are of Taplow age.

Allen Brown found many implements at Dawley, Hanwell, Southall, Hillingdon (and its neighbourhood), Yiewsley, and West Drayton. In the parish gravel pits at Hillingdon, at a height of about 175 feet above Ordnance Datum, he found flints in gravels which are certainly those of the High Terrace, but he was wrong in supposing that an unbroken spread of ' High Level drift ' could be traced

from Hanwell to Iver on the Buckinghamshire side of the Colne.[1]

His book, with the unaccountable title of *Palaeolithic Man in North-West Middlesex* (it deals entirely with the southern and south-western parts of the County), was published in 1887, and contains, with much extraneous and aggravating matter, a good account of his researches up to that date. Most of the flints which he found are now, like those of Worthington Smith, in the magnificent collection which the late Dr. Allen Sturge bequeathed to the British Museum.[2]

In recent years, a fine collection of palaeolithic and other flint implements from Acton and the district has been made by Mr. F. Sadler, the Surveyor to the Acton Council. This has been acquired by the new museum which is now open to the public at Gunnersbury House, Acton.

The Creffield Road floor was again uncovered by excavations in 1927, and Mr. J. G. Marsden picked up 70 flakes and implements, dug out from a depth of 4 to 6½ feet. Mr. Marsden has also collected flints from the pits at West Drayton, Hanwell and Hounslow.[3]

A very fine collection of choice pieces from West Drayton and other sites has been made by Mr. F. N. Haward of Ealing, and some other remarkably good specimens from the same area are in the possession of Mr. T. H. Knowles of Hanwell. Large numbers of implements from the gravel pits at Yiewsley, West Drayton and elsewhere have been purchased and collected for many years by Mr. R. Garraway Rice, F.S.A., and among these are some of the best Acheul and Le Moustier pieces which have ever been found in our district.

In summarizing the results of research among the palaeolithic gravels of Middlesex, it must be remembered that little has been done in the way of methodical investigation in recent years. Nor is investigation easy. The use

[1] *Proc. Geol. Assoc.*, XVIII, p. 153.
[2] An illustrated catalogue of this collection is being prepared.
[3] *Proc. P.S.E.A.*, V, Pt. III, p. 297.

of machinery in the larger pits and the speedy removal of the gravel make it exceedingly difficult, even for the men concerned in the work, to detect the presence of flint implements. Moreover, the greater number of the implements which are recovered are generally taken by the men and sold to collectors (a transaction which is legally somewhat questionable, but which is certainly the custom), or kept as curiosities: in each case they are usually lost to science and unrecorded. The prices which are given for these implements range from a few shillings to a pound or so. In these circumstances it is clear that no research of any real value can be undertaken without the assistance of the pit-owners. Such assistance is not always readily accorded, and visitors to the pits during working hours are seldom popular.

At the same time, it is generally possible to view the pits on a Saturday afternoon or a Sunday, when something may be learned from a talk with the watchman. The sides of a gravel pit have usually some feature of interest, and the archaeologist always hopes that he may find implements or bones embedded in them. He may also pick up flakes, and occasionally a good implement, on the piles of gravel which are heaped up ready for transport. But the continued search for palaeolithic implements in such places implies a degree of patience or an amount of leisure which few men possess.

The Taplow gravels may be seen in pits at Yiewsley near West Drayton, at Dawley, Southall, Hanwell, Hounslow, and in scores of other places, either in pits or in temporary excavations. Boyn Hill deposits are exposed in Messrs. Sabey's pits at Yiewsley, and a remarkably fine section is at present (1929) revealed in a working close to the Harlington Road at Hillingdon, at a point about three-quarters of a mile south-east of the church. A little below this working, the dip of the gravel under a spread of brick-earth may be clearly seen.

It cannot be positively stated that flints of Upper Palaeolithic (post-glacial) date have been found in Middlesex, but that period has been claimed for a series found

near Uxbridge, actually a few hundred yards outside the Middlesex boundary, and for others from the site of the new Admiralty Buildings in Whitehall.

In such cases the difficulty of exact classification is admittedly a very great one. The Upper Palaeolithic period, following that of Le Moustier, is clearly recognizable in cave deposits where its characteristic productions in flint, horn, ivory and bone are grouped together, associated with skeletal remains of man; but not so readily determined on the sole evidence of flint tools or flakes, even when these are localized and found in large numbers, as at Uxbridge.

The Uxbridge flints, which lay under the alluvium of the Colne valley, are exactly matched by others which have been found beneath the surface-soil near Ealing Common. It cannot be questioned that many of these flints are altogether typical of the final phase of the Upper Palaeolithic (La Madeleine). Both at Uxbridge and at Ealing they were found in a 'sealed deposit', protected from disturbance by overlying accumulations of mud or soil, and in both cases they represented the débris of a working floor. In the Uxbridge series, however, there are pieces which may well belong to the Neolithic or New Stone Age; and at Ealing Common fragments of pottery were apparently discovered with the flints. We must hesitate, therefore, in ascribing these finds to a given period. In the opinion of Dr. Allen Sturge, they are of La Madeleine date; and they are also ascribed to the Upper Palaeolithic in the British Museum *Guide*.[1] On the other hand, Mr. A. S. Kennard, who found the Uxbridge series, and Mr. F. N. Haward, who discovered those on Ealing Common, now believe them to be neolithic. But Mr. A. S. Kennard, in his original account of the finding of the Uxbridge series, said that 'nearly all are well-known Cave types'.[2] It is to be regretted that no specimens of these remarkably interesting flints are to be seen in a public collection where they would be accessible to

[1] *Brit. Mus. Stone Age Guide, 3rd Ed.*, p. 68.
[2] *Proc. Geol. Assoc.*, XVIII, 1903, p. 188.

students. If they are, as they well may be, of Upper Palaeolithic age, they belong to a period which is scantily represented or rarely recognized in this country.

The flints from the site of the Admiralty Offices are also of questionable date. They were found in 1892, and were described by Mr. Lewis Abbott.[1] Unfortunately, the account of the find is lacking in detail, but Mr. Abbott speaks of 'a lanceolate form' which 'foreshadows the well known Neolithic type, although the quality of its work is essentially Palaeolithic'. There was also 'a leaf-shaped implement which presages the Neolithic type'. Some dozen plain and worked flakes were found, together with cores from which thin narrow flakes had been struck.

Other finds made within our district unmistakably suggest an Upper Palaeolithic date; and it is wholly unreasonable to suppose that the men of this period, traces of whose handiwork have been found in other parts of southern Britain, and as far north as Derbyshire, should have left no signs of their presence in the lower Thames valley. We shall return to this archaeological problem in our next chapter.

The great interest of the Middlesex gravels from the archaeological point of view lies in the large number of specimens of undoubted Acheul and Le Moustier types which they have produced, and in the presence of definite working-floors at Acton and at Stoke Newington. In this respect, they have a more than local importance, and have provided evidence which is of the greatest value to the general study of prehistoric man.

What is certainly the finest and most representative collection of palaeolithic implements from Middlesex and London is that acquired by the late Dr. Allen Sturge, and now to be seen, on application to the Department of British Antiquities, in the British Museum. This contains the greater number of the specimens obtained by Worthington Smith and Allen Brown, and many others procured by Dr. Sturge himself. Some other specimens, among them the famous Gray's Inn hand-axe, are shown in the

[1] *Proc. Geol. Assoc.*, XII, p. 349.

Stone Age room of the Museum. A small but good series is exhibited in the London Museum. The Crooke Collection, in the Public Library at Brentford (where also is the Layton Collection, to which we shall often refer), includes some fine specimens from Ealing and Acton ; and a larger series, in which are some exceptionally handsome and interesting pieces, is now shown in the Sadler Collection at Gunnersbury House, Acton.

For Further Reading : H. F. Osborn, *Men of the Old Stone Age*, 1921—well illustrated and not unduly technical ; Lord Avebury, *Prehistoric Times*, 6th ed., 1900 ; R. A. S. Macalister, *Text Book of European Archaeology, Palaeolithic Period*, 1921—a good introduction for the more advanced student ; W. J. Sollas, *Ancient Hunters and their Modern Representatives*, 3rd ed., 1924 ; M. C. Burkitt, *Prehistory*, 1921—a book for advanced students ; O. G. S. Crawford, *Man and his Past*, 1921 ; J. Allen Brown, *Palaeolithic Man in North-West Middlesex*, 1887—archaeologically out of date, but of value as a local record ; Worthington G. Smith, *Man the Primeval Savage*, 1894 ; *British Museum Guide to the Stone Age*, 3rd ed., 1926—admirably illustrated.

CHAPTER III

ARCHAEOLOGY OF THE MIDDLESEX GRAVELS

THE first question which an intelligent layman is likely to ask when he is shown a flint implement is, ' How old is it ? ' This very reasonable question, if incautiously answered, will be followed by another, more searching and more difficult—' How do you know ? '

Even the approximate dating of palaeolithic implements in terms of thousands of years, however impressive or ingenious it may be, is based only upon a calculation of probabilities. It is all a matter of geological evidence, and the correct interpretation of that evidence. We may well be dismayed, and perhaps inclined to scepticism, when we consider the wide divergencies of opinion among experts. In a book confined to the material of a given district, the examination of these opposing views is not to be attempted ; but we may note that, on a subject so vitally related to our study as the duration of the glacial period, the estimates range from the mere 25,000 years of Sir Joseph Prestwich to the 200,000 years of Lord Avebury, and the 500,000 to 1,000,000 years of A. Penck. The study of the same phenomena leads to different conclusions in different minds; and although no one could now accept the estimate of Sir Joseph Prestwich, and we should regard the generous latitude of Penck with greater favour, the question of time-movement as applied to geological data is one which is not, and probably never can be, definitely settled. Nor is the problem of dating made easier for the archaeologist by the fact that implements differing but little in form were produced continuously during immensely long periods

of time—that is, immensely long if reckoned by the ordinary historic measures. We must therefore admit that any detailed system of prehistoric chronology must be based upon a series of assumptions, and that, even if types and the sequences of types can be accurately defined, we cannot do more than set a reasonable limit to guess-work, and test any new statement by a process of rational criticism.

The oldest worked implements contained in the Middlesex gravels certainly belong to an interglacial period when implements of Chelles type were being produced, though it may be doubted whether the earliest Chelles period is actually represented in this district. Their geological position is in the gravel of the High or Boyn Hill Terrace of the Thames, but, as we have seen, they are scattered, by the washing away of that terrace, over the lower levels as well. Implements thus removed from the place of their original deposit are termed ' derived ', and most if not all of the unquestionable Chelles material found in this area belongs to the ' derived ' category. Such implements have been, and are, found at Ealing, Acton, Southall, Osterley Park, West Drayton, and in the London area.

But the drawing of a hard-and-fast line between implements of late Chelles type and those of the early St. Acheul period cannot, or should not, be attempted. Rough work was produced at all periods, and mere clumsiness is in itself no proof of date. Type and period must not be thought of as inseparable, and although the finer forms can be eliminated from a study of the earlier periods, crude or massive objects cannot always be put back to the more remote phases of industry. However obvious the fact may be, it should be remembered that the first aim of the primitive tool-maker is to produce an instrument which will serve the simple needs of a primitive existence ; the desire to produce a tool which is beautiful or merely symmetrical in form and outline, as well as useful, is always subordinate to the first consideration. Hence we find, at all periods, roughly chipped or sharpened pieces of flint which are none the less extremely well adapted for cutting, pounding, piercing or scraping.

In identifying the earliest flint implements of our district —the Chelles types—we have to look for three characteristics, and even these are not strictly determinative: (1) the heavy, simple and deliberate style of the flaking, and the frequent retention of a part of the outer crust of the nodule, usually at the base or butt of the implement;

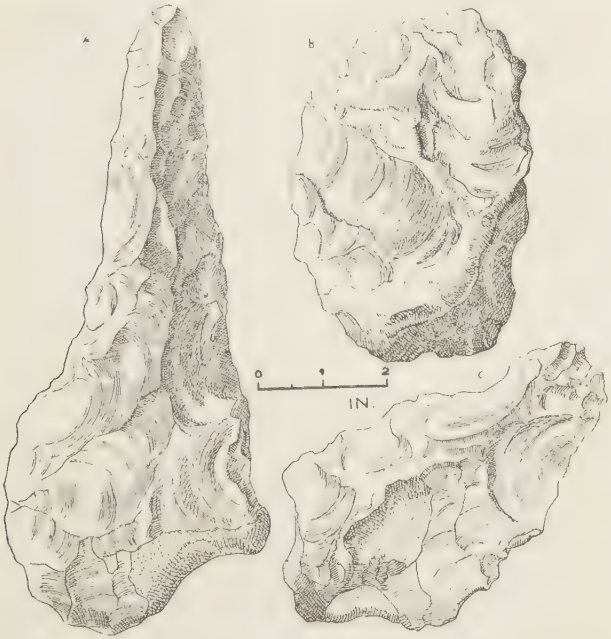


FIG. 7.—PALAEOLITHIC IMPLEMENTS OF EARLY TYPE
A, Dawley; B, West Drayton; C, North-East London
Sturge Collection, British Museum.

(2) the wearing-down or abrasion of the ridges between the flaked surfaces; (3) a general roughness of outline. A dark rich yellow-brown or rufous stain is often, but by no means invariably, present. Chelles implements in Middlesex are rarely, if ever, found *in situ*—that is, in the place of their original deposit—and the wearing-down of the flaked surfaces, varying in degree from a slight roughening

or whitening of the ridges to an almost complete obliteration, may be taken as a practically invariable characteristic. An implement with clean, sharp edges can be safely ascribed to a later period.

The High Terrace of the Thames was eroded, and its gravels washed down, both before and after the formation of the Taplow Terrace. In consequence of this, ' derived ' implements occur at various levels. The problem of the redistribution and disturbance of the river gravels is one which has not been completely solved, and the mixing of material is a source of much confusion.

We illustrate a Chelles implement from West Drayton (Fig. 7) which is stained a dull yellow, is slightly abraded, and can be taken as a representative of the simpler type of chopping-tool with a thick and heavy back. It is about $5\frac{1}{2}$ inches in length. Below it is one of rough and jagged form, with part of the crust left on the butt, from North-East London, showing little sign of abrasion. To the left is a hand-axe of *ficron* type from Dawley, $9\frac{3}{4}$ inches long : it is not abraded, and, although the broad, heavy butt is typical of Chelles work, and the *ficron* is generally regarded as an implement of the Chelles period, this example is probably of early Acheul date. It is made of rough, impure flint, and is stained a reddish yellow.

A clumsy ' side-chopper ' in the London Museum, from Millbank Street, and two others, much rolled, from the same place, are probably of Chelles date ; and we may include, from the same collection, a rolled and abraded hand-axe from Great Portland Street, and the fragment of another from King William Street. Other specimens, all ' derived ', may be seen in the Sturge Collection in the British Museum (application to the Keeper is necessary), in the Crooke Collection at the Brentford Public Library, in the Sadler Collection at Gunnersbury House, and elsewhere. Attention should be drawn, in particular, to a series of rolled flakes and implements from Seward's pit at Hanwell (perhaps not all of Chelles date) in the Sadler Collection.

As we have already noted, the Chelles period is only

sparingly represented in our district. Many implements which were formerly assigned to this period are now regarded with less confidence, and the tendency at present, as far as the Chelles category is concerned, is one of exclusion rather than of admission.

By far the greater number of the palaeoliths found in Middlesex come from the deposits of the Middle Terrace, and for us the chief interest of those deposits is that they contain implements in fresh, unabraded condition, and exhibit, in certain places, the actual land-surfaces upon which the men of palaeolithic times lived.

It is certain that implements of Acheul type make their first appearance in the gravels of the High Terrace, but they are best represented by implements of later and more unmistakable type from the Taplow gravels. To this period we may now ascribe many fine, unrolled pieces, with sharp edges and clean flaking, which were at one time considered as belonging to the Chelles period—as, for example, the beautiful hand-axes, already mentioned, from Piccadilly, some of which are in the London Museum.

Hand-axes and shapely ovates of Acheul type have been found in most of the places in our district where the Taplow gravels have been exposed. We can reckon among these some of the finest and most perfect examples of palaeolithic handiwork which have ever been discovered, though it must be understood that such examples are not of frequent occurrence in any deposit. A goodly proportion of these fine implements are at present in the hands of private collectors.

Naturally, implements are best preserved when they lie in undisturbed layers of sand or brick-earth; but even those in contact with pebbles and flints are sometimes remarkably free from damage. Many, of course, are broken. A simple test of the age of the break is afforded by the colour and appearance of the fractured surface: if this has the same stain or patina as that on the worked faces of the implement, the damage may be as old as the implement itself. A recent break is unstained and unpatinated, and shows a dead, lustreless, grey, honey-

coloured or black surface, according to the original character of the flint. No rule can be laid down as regards colour, for both stain and patina are due to accident, but it may be stated that the usual stain found on Acheul implements in our district is an ochreous yellow, seldom uniform over the whole surface of the implement, and often having the effect of a light water-colour wash.

Magnificent specimens of the flat, finely-worked ovate and of the slender hand-axe with tongue-like point have been found at Yiewsley and at West Drayton. Equally fine specimens from North-East London are in the Sturge Collection (incomparably the finest collection of flint implements in this country, and probably in the world). Upper and Lower Clapton have produced some of the best of these, and two in the Sturge Collection, from Rushmore Road and Newick Road respectively, are specially to be noted. Some interesting hand-axes of late Acheul type, found by Mr. W. Seward at Hanwell, were exhibited to the British Archaeological Association in 1907.[1] Acheul types have also been found at Harefield, in the Colne valley deposits; and we may note, that a singularly perfect and most beautiful ovate implement was recently found on the other side of the valley during work on the new road at Denham in Buckinghamshire.

The type regarded as transitional between the periods of Acheul and Le Moustier (a type not yet adequately studied in this country) and known as that of La Micoque, is represented locally by a dozen or more specimens in the Sturge Collection (not all exhibited at the time of writing). It is a hand-axe of medium size, with a worked convex upper face and a flat under-side; so that it somewhat resembles a pear sliced in half longitudinally.

The period most fully represented here is that of Le Moustier, for implements of this period are found throughout the entire thickness of the Taplow Terrace; and before we proceed, it may be of interest to see what is known concerning Le Moustier man himself.

No human bones of proved Le Moustier date have yet

[1] *Journ. Brit. Arch. Assoc.*, XIII, p. 123, with plate.

come to light in England, but they have been discovered in Belgium, France, Spain, Germany, and Yugo-Slavia. We know, from these discoveries, that a very strange type of early humanity was associated with Le Moustier flints, and this type is more usually referred to as Neanderthal man—so named from a site near Dusseldorf where the celebrated Neanderthal cranium was found in 1856. Neanderthal or Le Moustier man had a form which was unmistakably human, but which retained many ape-like features. His body was short and heavy. His head was large, with face and jaws more fully developed than the brain-box. The top of his head was low and flattened, his eyes were overhung by great ridges, his forehead was shallow and retreating, his neck enormously thick. His cheek-bones were flat, but his prominent muzzle and the complete absence of a chin gave him a brutish and sinister appearance. He walked with a shuffling gait, and was unable to assume a perfectly erect position.

Yet this extremely primitive, this rudimentary man was a skilled flint-worker, a fact well attested by numerous admirable specimens of his work found in our own district. We do not agree with Professor M. Boule when he says, ' There is hardly . . . a more wretched industry . . . than that of our Moustierian man ' ; [1] but rather with Sir Arthur Keith, who observes that ' His skill as a flint-artisan shows that his abilities were not of a low order '.[2] He was a hunter, had learnt how to use fire (the supreme achievement of the human race), and lived in caves where caves were available. What is more remarkable is the fact that he buried his dead with care and with ceremony, providing shelter, food and weapons. He must have had either a belief in the continued existence of the personality after death, or a peculiar respect for the dead body, and a desire to show that respect in a definite manner. The association of such beliefs and sentiments with a creature so exceedingly primitive as to retain many of the features of the chimpanzee is at first glance somewhat

[1] *Les Hommes Fossiles*, 1923, p. 240.
[2] *The Antiquity of Man*, 1925, I, p. 223.

astonishing; but we must remember that the Australian aborigines, the most primitive of all observed human races, had evolved some of the most elaborate funeral rites which have ever been practised.

We know very little as yet concerning the northern and western distribution of the Neanderthal or Le Moustier culture in this country, but we do know that Le Moustier man lived in the chalk regions of Southern and Eastern England, and our evidence shows that he existed for a very long period and in very considerable numbers on the Middle Terrace of the Thames. Here, as elsewhere, he seems to have hunted the mammoth. His flints have been found in actual contact with the bones of the mammoth in several places within our district.

What was probably the complete skeleton of a mammoth was found at Norwood Lane, Southall, in 1895. The bones were dispersed by workmen before they had been seen by a competent observer, but Mr. Allen Brown, who arrived on the scene as soon as he could after hearing of the discovery, managed to secure a bag of fragments, and was able to state that the bones were fresh and clean in appearance and that flint implements were found in contact with them. He described the implements as ' typical forms of the oldest specimens found in the higher terrace deposits ', but those which he published were clearly of Le Moustier date, with the possible exception of a hand-axe.[1] The bones were in sandy loam (brick-earth ?) at a depth of about 15 feet from the surface.

Mr. Worthington Smith found the shoulder-blade of a mammoth at Stoke Newington with a flake-implement resting upon it, and both bone and implement, in the position in which they were found, are exhibited in the British Museum. It will be remembered that the famous Gray's Inn hand-axe was associated with ' the Body of an Elephant '.

In the making of his flint implements, Le Moustier man often employed a curious but thoroughly practical method. He took a suitable nodule of flint and trimmed it to a

[1] *Proc. Geol. Assoc.*, X, No. 7.

bi-convex form, with the one face more highly domed than the other, somewhat resembling a tortoise. Then he flaked one of the edges vertically, so as to produce a flattened end or platform. By a well-directed blow upon this platform he struck off the flatter face of the ' tortoise core ', and thus obtained a flake-implement, with the underside smooth and plain and the upper convex face already worked. The form of the implement depended on the preparation of the core, and to a certain extent on luck. Sometimes the critical blow failed in its object, and the flake, instead of coming off level, ' plunged ' into the core.

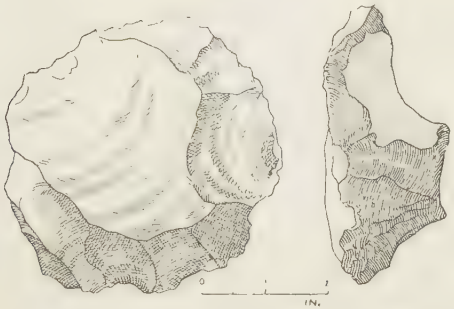


FIG. 8.—LE MOUSTIER ' TORTOISE-CORE ' FROM WEST DRAYTON
Collection of J. G. Marsden

In this case, both time and labour were lost. But the method was a quick one ; and when it succeeded, as it usually did, the implement had a thin keen edge, and a little secondary chipping was all that was needed to give it a symmetrical outline or to bring it to a point.

A flake thus detached from the parent-block or core shows on its lower face the ' bulb of percussion '—a swelling near the point at which the detaching blow was struck, and from which concentric waves or ripples spread over the surface. A corresponding concavity or ' flake-bed ' is left on the upper face of the core. This is the characteristic fracture of flint when struck sharply at a given point, but a ' bulb of percussion ' is not in itself a sure proof of human handiwork.

In the typical flake-implements of Le Moustier times we find, therefore, a portion of the flaked 'striking-platform' at the butt-end, resulting in what is known as the 'faceted butt'; a plain under-side with a bulbar prominence at the base; and a slightly convex upper face, perhaps with fine secondary chipping along the edges.

We illustrate a 'tortoise core' found at West Drayton, measuring slightly over 4 inches across, which, though small, can be regarded as typical. The broad rippled surface of the flake-bed shows clearly the outline of the

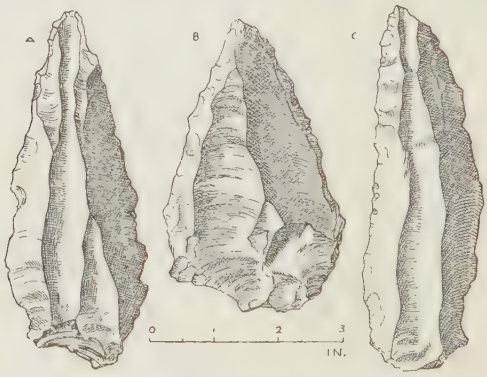


FIG. 9.—LE MOUSTIER FLAKES
A, North-East London; B, West Drayton; C, East Acton
Sturge Collection, British Museum

flake which was removed from it. Cores were usually thrown away after the flake had been struck off, but were occasionally used as implements. A 'tortoise-core' from brick-earth of Taplow date at Botwell (about a mile south of Hayes) is in the British Museum.

A typical and beautiful flake-implement from West Drayton is shown on Fig. 9. This, which is of black, unchanged flint, is the characteristic Le Moustier 'point'. We would also note an extremely fine specimen in the Sadler Collection at Gunnersbury House, said to have been found at Dawley; and another, in the same collection, patinated but practically unstained, found at Ealing

Common. Large broad flakes with plain bold flake-beds or facets on the upper face (' Northfleet ' or ' Levallois ' type) are occasionally found in our district, but not in the profusion in which they are found in the river gravels below London.

Also typical of the Le Moustier period are the simple flakes, probably used as knives, which occur frequently in the Taplow gravels of our district. Many of these are but slightly stained or patinated, and have edges as sharp and clean as when they were struck from the core. Some are long, thin and narrow, others broader and thicker. We must again refer the reader to the Sturge Collection, where he will find numerous examples of these flakes from all the chief localities in our district which have yielded traces of palaeolithic man. Three exquisite long and narrow flakes come from the ' Hillingdon district ', where they were found by Mr. Allen Brown ; others from Ealing (Warwick Road and Churchfield Road) ; and others from Dawley and West Drayton. An exceptionally fine thick flake, nearly 6½ inches long and 2½ inches broad, is labelled ' North-East London '. In the London Museum there are flakes of Le Moustier type from Syon Reach and Wandsworth, and also from Floral Street (Covent Garden) and Great Russell Street.

It should be mentioned that rolled flakes of uncertain period have been found in the vicinity of Uxbridge.

Palaeolithic implements made of materials other than flint are exceedingly rare in districts, such as ours, where flint is readily obtained. Worthington Smith found some quartzite flakes in the gravel at Stoke Newington, and one complete hand-axe of quartzite, about 5½ inches long, now in the British Museum. Another rather similar quartzite implement, 6½ inches long, was found by Allen Brown at a depth of about 25 feet at the Southall Gas Works (Sturge Collection). He also found a small hand-axe of felsite at Maynard's pit at Dawley.[1] These exceptional pieces are much rolled, and their date is uncertain. It is not easy to say why, with supplies of infinitely pre-

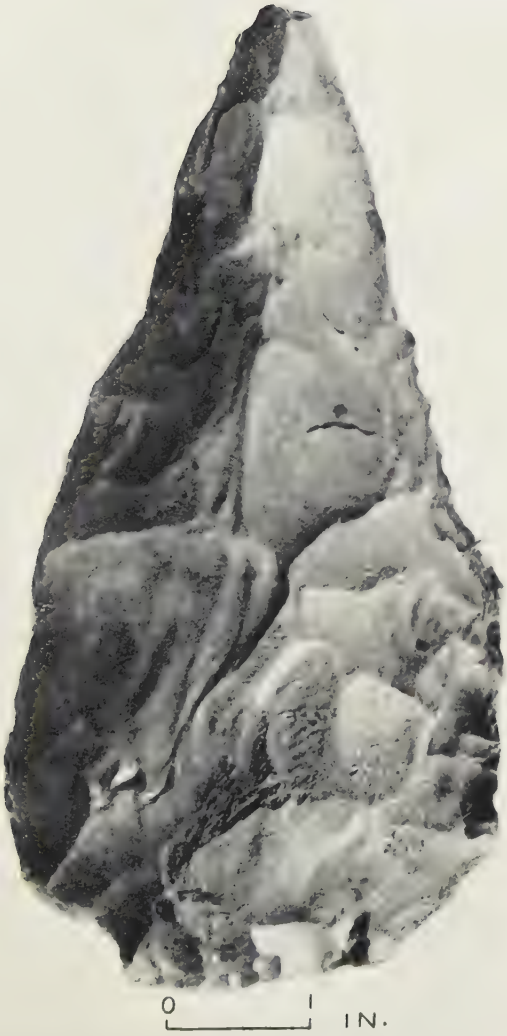
[1] *Proc. Geol. Assoc.*, XVIII, p. 153.

ferable material to his hand, prehistoric man should have occupied himself in the slow and difficult production of things comparatively ugly and useless—unless we assume the perverse delight of the artist in mere performance.

We have already said that the representation of the Upper Palaeolithic periods (the periods following that of Le Moustier) is not yet clearly proved in this district. It is likely that the proof will sooner or later be produced, and it seems to us highly probable that it is already in existence, though generally unrecognized. If type in itself was always an infallible guide to period, we might certainly claim an Upper Palaeolithic date for some of the Uxbridge and Ealing Common flints which have already been described (p. 44). But other factors have to be taken into account, and those factors, though not by any means conclusive, are sufficient to make us hesitate. The case for the Admiralty flints (p. 45) would appear to be even stronger ; but here, unfortunately, the record is not altogether clear and confirmatory data are lacking.

Many long slender flakes, which are definitely suggestive of the period of La Madeleine (the last phase of the true palaeolithic), raise the same question. Examples have been found in the Thames with a slight uneven ochreous strain which is not usual on later flints, and others, also from the river, are dark and lustrous with a faint bluish patina. Flakes of the same type have been found at Ealing, Acton (Springfield Park), and at Dawley. These flakes are obviously not of Le Moustier date, but they are not surface types of the neolithic period. They are at least reminiscent of La Madeleine, and we see no reason for refusing to admit the possibility of such a date.

Typical blades or flakes of this kind, mostly from the Thames, are from 4 to 6 inches long, with a maximum width of about three-quarters of an inch. The flaked upper face has more or less parallel facets running the length of the blade ; the under-face is plain, with the ' bulb of percussion ' at the broader end. If they belong to the Neolithic (New Stone) Age, they must belong to an early stage of that period, probably corresponding to that



HAND-AXE FROM CLERKENWELL
British Museum

of the earliest pile-dwellings in Switzerland ; but the suggestion of greater antiquity cannot be dismissed. Most of the best examples known to the author are in private collections, but there are some excellent specimens, showing interesting varieties of colour and surface, in the Sadler Collection at Gunnersbury House ; others are shown (as neolithic) in the London Museum. An Upper Palaeolithic date is also strongly suggested by two cores, patinated and highly lustrous, from Ealing and Sloane Square respectively, which are exhibited in the London Museum, where they are assigned to the neolithic period.

Those who wish to find palaeolithic implements in Middlesex must take advantage of opportunity. Such opportunities occur, in the region of the river gravels, when houses are built, drains or cables are laid and roads are made (and sometimes when graves are dug). Every gravel pit produces flakes or implements, but we have already spoken of the disadvantages, from an archaeologist's point of view, of research in these pits. The mere collector is not greatly concerned with the place and circumstance of discovery, so long as he manages to acquire specimens ; but the archaeologist is chiefly interested in these particulars. For this reason, the sections or exposed faces of a pit should be carefully studied, for it is here, if anywhere, that implements (or bones) will be found *in situ*.

An ideal section through the Taplow Terrace is shown in Fig. 10. But sections vary. The face of a gravel pit is a geological record, in which the chapters or headings are represented by layers of differing character. Brickearth and clay, sand, gravel and pebbles have been deposited by the river, by floods, thaws and drift-movements, at different times and on different levels. The history of the terrace is not everywhere the same. Sand is laid down in hollows or pockets of an older surface, and is in its turn pressed down by overlying deposits, so that the cutting reveals a series of dips and curves. Trail or glacial drift, when it is present, shows more violent contortions. Episodes of all kinds, and changes in the course or volume of the stream, leave their mark.

The brick-earth has been largely removed for commercial purposes, but may still be seen in some places, overlying the gravel as a compact reddish yellow loam of a stiff and firm consistency, sometimes containing a few scattered flints or pebbles. At present (1929) a fine section of brick-earth is exposed in a large pit belonging to the Hounslow Sand and Gravel Company at Hounslow, and it may also

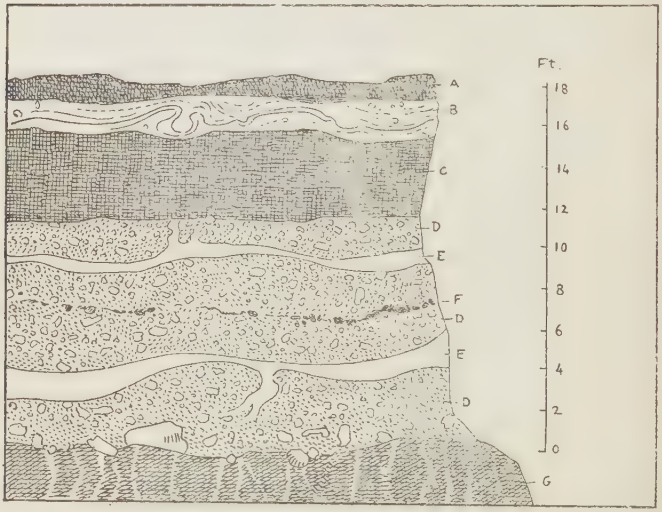


FIG. 10.—SECTION THROUGH THE TAPLOW TERRACE
A, Humus; B, Trail; C, Brick-earth; D, Gravel; E, Sand; F, Manganese Stain; G, London Clay

be seen in a pit close to the Great Western Railway bridge at Hanwell.

If we examine the face of a typical gravel pit in the southern part of our area, on the Middle or Taplow Terrace, we shall see at the top of the section from 6 to 12 inches of dark surface-soil or humus, which, if it has been worked for agricultural purposes, is likely to contain a mixture of relics of all periods from the neolithic period to the present day. If glacial drift or Trail is present, it will lie immediately below the surface-soil, and will exhibit a wavy,

curved, undulating or dipping section, with (possibly) ' bleached ' or whitened pebbles, rolled and abraded flints dating from the period of Chelles to that of Le Moustier, and varied geological material. Below the Trail will come the brick-earth, already described ; but it is highly probable that neither Trail nor brick-earth will be present ; for neither represents a uniform spread over the entire district, and the latter has been removed in a wholesale fashion by commerce. Most likely, the layer beneath the surface-soil will consist of the upper beds of the gravel—small pebbles and flints of various ages, with sharp reddish, yellow, or pale buff-coloured sand. Below the upper beds, which consist to some extent of downwash from the higher levels, comes a heavier but less compact gravel, with sharp, unabraded flints and seams of whitish, grey or buff sand, of a remarkably fine and even texture, and perhaps an occasional streak of light blue or slate-coloured clay (London Clay, freshly exposed, in the majority of cases). In this gravel we may expect to find Le Moustier flakes or implements *in situ*. In the case of a floor, which represents a level more or less continuously occupied, but not necessarily for a long period, the deposit of worked flints will occur consistently on a given plane (whether horizontal or not) ; but occasional implements are to be expected throughout the entire thickness of the gravel : those from the lower beds are usually rolled and abraded. Thin black streaks of manganese (already mentioned) are seen in most sections, but have no archaeological significance. In the lower beds of the gravel, where Acheul types may be anticipated, the material is heavier and coarser, and may contain large blocks of flint and boulders of grey-wether sandstone or sarsen. Clay or sandy clay, whitish or blue-grey in colour, is here frequently found in streaks or isolated layers, and probably consists of re-deposited London Clay, washed down from the higher ground and mixed with river sand. The gravel ultimately rests upon the London Clay, and it is at the base of the gravel that the bones, tusks or teeth of mammoth, and the bones of other Pleistocene animals, most frequently

occur. Implements, too, are often most thickly distributed immediately above the Clay. Some day, perhaps, one of our gravel pits will yield the bones of a Neanderthal man.

It has been already stated that the depth or thickness of the gravel beds varies considerably. A depth of 8 to 10 feet may be taken as an average, but those figures may be more than trebled in places. It is hardly necessary to observe that the London Clay (which, it will be remembered, is of Eocene age) contains no archaeological material.

No special intrinsic features of a natural kind differentiate the gravels of the High from those of the Middle Terrace, and our description of a cut through the Taplow Terrace might be applied, almost without alteration, to a similar cut through the Boyn Hill gravels, though sections of the latter are rarely seen in our district. A pile of Boyn Hill gravel and a pile of Taplow gravel, placed side by side, would probably appear exactly similar. The Flood Plain gravels are usually of smaller and looser material than those of the terraces above them ; the comparatively few implements which they contain are chiefly derived ; but they contain an interesting and varied assortment of animal bones (see p. 21) belonging to their own period.

In regard to sites for palaeolithic research which are available at the present day, it can hardly be said that one gravel area is more productive than another. The floors at Stoke Newington and Acton are built over, but may be exposed by temporary operations at any time. Other floors no doubt await discovery. To the collector, we can only repeat our advice that he should look in any place where terrace gravels are exposed ; and, if he merely wishes to obtain specimens, in any places where the transported gravel is being used for road making or building. The smallest excavation—the laying down of drains or cables—may disclose a whole series of implements ; and, on the other hand, work extending over a wide area may produce little, if any, archaeological material. Vigilance, opportunism, a great deal of patience and the unquenchable

hope for better things are gifts, or qualities, which are very necessary for the field-worker. The fine coloured geological map of the London area, published by the Geological Survey and sold by Messrs. Stanford, is invaluable, or rather indispensable.

Archaeological discoveries of importance can only be made where the actual terraces are exposed. And it must be remembered that discoveries are of little value unless they are accompanied by careful measurements and observations and a concise narrative. The discovery of human bones in the terrace gravels would be of infinitely greater importance than the discovery of any number of worked flints ; but such a discovery would only excite doubt and speculation, unless photographs were taken, levels recorded, and appearances carefully described before the bones were taken from the deposit in which they were lying. We would impress upon all who wish to undertake research among the gravels of our district the necessity for scientific method, or at least for common sense. The destruction of material is always to be regretted, but not half so much to be regretted as the destruction of evidence. Once an object has been published, with complete details and careful illustration, it may, in itself, become a thing of secondary value : the loss of the object would not then be so serious, but the loss of original evidence is irreparable.

Anyone is a potential discoverer. Archaeological discovery depends upon observation, luck, or patience—and as much upon luck as anything else. But once the discovery has been made, the responsibility of the discoverer begins, and he must not regard it lightly. If he thinks that he cannot deal with it himself, he should lose no time in securing the advice of an expert.

Methodical search in the few areas where masses of undisturbed Boyn Hill gravels are exposed (as at Hillingdon) might lead to interesting and valuable results. Our archaeological knowledge of these gravels is far from complete, and it is quite possible that future finds may involve the revision of our ideas concerning their age and,

in consequence, the age of the implements which they contain.

Once enthusiasm is kindled, there is no pastime more delightful than the hunting of flint implements, and certainly none more innocent ; but it is not a pastime in which quick results and heavy bags should be too confidently anticipated.

For Further Reading : A. Keith, *The Antiquity of Man*, 2nd ed., 1925—a work of the highest importance, viewing the subject chiefly from an anatomical standpoint ; M. Boule, *Fossil Men* (trs.), 1923—one of the finest works on the subject, with excellent illustrations, and making a wide general survey ; J. Evans, *Ancient Stone Implements of the British Isles*, 2nd ed., 1897—a classic, notable for its illustrations, which are probably the best and most accurate of their kind ever published ; Pitt-Rivers, *Discovery of Palaeolithic Implements at Acton*, in *Journal of the Geological Society*, 1872, p. 449 ff., with interesting sections of the gravel beds ; *British Museum Guide to the Stone Age*, 3rd ed., 1926.

CHAPTER IV

THE NEW STONE AGE

IT must not be supposed that one period in prehistory succeeds another clearly and sharply, marked by the convenient appearance of new races and the swift introduction of new objects. In looking at any good collection of prehistoric implements, we are struck at once by the very gradual change from one type to another, by the long continuance of the older forms, and by the well-defined stages of transition.

When we examine the material of the Neolithic or New Stone Age, it is advisable not to lose sight of these considerations. We must rid ourselves altogether of the idea that the neolithic period represents a phase of innovation, separated by an unaccountable gap from all that preceded it. The neolithic period is the last phase of the great Stone Age, developing with no break of continuity from the palaeolithic, and merging without abruptness into the succeeding ages of Copper and Bronze. It is a phase which, in practically every part of the habitable world, presents consistent features. 'Everywhere the same industry corresponds to the same phase of culture. The more one advances in knowledge of primitive civilizations, the more one recognizes the constant effects of that determinism which regulates the development of human industry'.[1] The men of the New Stone Age had less leisure, and consequently less art, than their predecessors; they were severely practical, and concerned with improving the material conditions of life.

[1] J. Déchelette, *Manuel*, I, p. 313. See also T. D. Kendrick, *The Axe Age*, Chapter IV.

In comparison with the vast duration of the Palaeolithic, or of the major divisions of that period, the Neolithic is relatively short. The word ' beginning ' as applied to this or to any other phase of prehistory conveys a totally false idea, but we may assume, for the benefit of those who like dates, even if they are only approximate dates, that men in Western Europe were not in the neolithic stage of culture much before 8000 B.C.

The neolithic stage—and it must not be too closely associated with ideas of racial movement—is characterized by the general use of pottery (not necessarily by the invention of pottery), by the practice of polishing stone implements, by a growing complexity in the social system and a consequent extension of social energies, by settlement, agriculture, the partial domestication of animals, and finally by certain methods of burial, There are few series of flint implements which can now, without misgiving, be described as exclusively neolithic. Certain forms of the stone celt or axe are clearly neolithic, but the most perfect, the most fully evolved forms of the axe belong unquestionably to an age when metal was already in use. So it is with the flint arrow-head. There are early forms of the arrow-head (with transverse edge) which do belong exclusively to this period ; but there are others which are common both to the neolithic period and to the Bronze Ages, and the final type, with barbs and tang, is now classified, without exception, as of Bronze Age date.

There are no structural traces of the New Stone Age in Middlesex, no burial chambers, no stone circles, no dolmens. If such things did exist here, they have been swept away, unrecorded, by industry and agriculture ; but it must be remembered that large slabs or blocks of stone do not occur naturally in the district. Nor are there many opportunities for picking up small objects of this period on the surface. Most of the worked stones and the horn or bone tools which can be ascribed to the neolithic, and all the pottery without exception, come from the bed of the Thames. Here again, the ascription of date is often extremely hazardous, except in the case of the pottery.

The objects from the Thames are usually dredged up in mixed material, and even if accurate information as to their finding could be obtained, it is not invariably required by dealers and collectors, to whom the mere possession of the object, and not its meaning or history, is the first consideration. In consequence of this, a great number of things in our museums, coming from the Thames and assigned to the neolithic period, might equally well be assigned to the Bronze Age, or even to a much later date. A chipped flint from British Honduras has been dredged out of the Thames at London. It is reasonable to suppose, however, that most of the neolithic people of Middlesex lived on or near the banks of the Thames, the Colne, the Brent and the Lea ; though we cannot accept without reserve the accounts, or legends, of ' pile-dwellings ' which are supposed to belong to this period.

In all probability, the geography and climate of Middlesex in neolithic times were not greatly different from those of the present day, although we may assume the elevation of the land above sea-level at the beginning of the period to have been somewhat higher than it is now. A temperate, humid climate had succeeded to one of dry cold, and it is likely that the better part of our region was covered by a dense oak-forest. In this forest lived the red-deer and the boar, the wolf, and a species of wild ox. The reindeer had gone. The Thames may have been broader and more rapid than it is at present, with a wider extension of muddy flats and of marshland along its lower reaches. We may also suppose that the little islands or ' eyots ' in the river were more numerous.

We are probably justified in associating with the beginnings of the neolithic age in our district a peculiar flint implement known as the ' Thames pick '. It is not, however, a local type, for it is well represented in the southern chalk areas of England, as well as in France and Denmark, aud it should be noted that the implement was still in use in the La Tène division of the Early Iron Age—a curious and most interesting example of survival. The pick is merely a flint bar, generally with a thick or steep section,

varying in length from 4 to 14 inches or more. So simple a tool was probably not made for specialized use and would have served many purposes. It may have been used for

FIG. 11.—'THAMES PICKS'
A, Westminster; B, Isleworth; C, Teddington
British Museum

hollowing dug-out canoes, for primitive excavations, for clearing the ground, and possibly in combat. Flint picks have been found at Spiennes, near Mons in Belgium, in the pits dug by the men of neolithic times for the extraction

of flints from the chalk, used in conjunction with the more usual miner's picks of deer-horn. Similar picks were found by Seton Karr in the flint-mines of Wady el Sheikh in Egypt. In France and Scandinavia, various forms of this implement are associated, as here, with the early phase of the neolithic period. There can be little doubt that flint picks were invariably fastened to wooden hafts.

There is a remarkably handsome specimen of the Thames pick in the Public Library (Layton Collection) at Brentford, about 13 inches long, of a rich dark colour and lustrous surface, pointed at both ends. Others, of various sizes, may be seen in the same collection. The set of picks in the London Museum includes one very fine example, but those which we illustrate are from the British Museum; on the left, a good example of the massive type, found in the river between Westminster and Lambeth; in the middle, a narrow, roughly worked specimen, 21 inches long, stained a dull ochreous yellow, from Isleworth; on the right, one made from a long rounded nodule of flint, retaining much of the crust or cortex, boldly flaked, from the Thames at Teddington.

The desire to improve upon the crude form of the pick may have led to the production of chipped flint axes or celts, and these were eventually ground and polished. The celt (so named from a spurious Latin word, *celtis*, a chisel) is an implement which seems everywhere to mark the final periods of the Stone Age. We here use the words axe and celt as alternatives of equivalent meaning, and not in a comparative or distinctive sense.

Forms which are definitely transitional between pick and celt are somewhat uncommon, and we must not assume that any given series of chipped axes is necessarily of earlier date than a series of polished axes. Nor must we too readily suppose that the form of a stone axe, in every case, enables us to place it with certainty in a chronological sequence. We may accept the general principle, that the earlier axes are thick and almost circular in section, while the later forms are thinner and flatter, but we must be

prepared to admit the co-existence of an astonishing variety of types. It is probable that very thin, slender and highly polished examples (especially those with pointed butts and broad cutting-edges) belong to an age when metal was in use.

The polished axe in its fully evolved form, whether in flint or in some other suitable material, is one of the most shapely, the most attractive of stone implements. Its cutting-edge has a rounded outline ; the sides, which converge slightly towards the butt, are more or less straight, or show a gentle convexity ; the butt-end has also a rounded or pointed outline. The grinding of the axe was effected by means of friction on a hollowed or grooved block of sandstone or some gritty rock (a ' celt-polisher ' from the Thames is in the London Museum), but the final polish was probably applied in some other way—perhaps by rubbing with moistened sand. Axes were invariably hafted—we may note a fine specimen from Staines in the London Museum, which clearly shows the banded impression of the haft—and have occasionally been found in their original handles of wood or horn. Here again, as in the case of the pick, we have an object of simple form which would have served for more than one use. It can hardly be imagined that the admirable flat axes of highly polished serpentine or jadeite (of Bronze Age date) were intended for mere utility ; nor can we believe that the finer examples of the neolithic axe, made with infinite patience and a high degree of skill, were meant for every-day purposes or for rough work. It may be noted that polished celts have been found in the later workings in the flint-mines at Grime's Graves in Norfolk, and also in similar workings at Spiennes, and at Mur-de-Barraz in the Aveyron.

The most beautiful examples of the ordinary polished axe are certainly those which are made of flint. The colour of the polished surface ranges from a delicate creamy white to a rich dark brown or a glossy black, but the colour of any one specimen is rarely uniform over the entire surface. In many cases the beauty of the surface-colour is

heightened by the banded or mottled character of the flint, or by the pleasing inequalities of stain or patina.

By far the greater number of the axes from our district have been found in the Thames, where they are frequently dredged up. Those which come from elsewhere are comparatively rare, and have therefore a special interest.

We reproduce a fine specimen of a polished axe in the

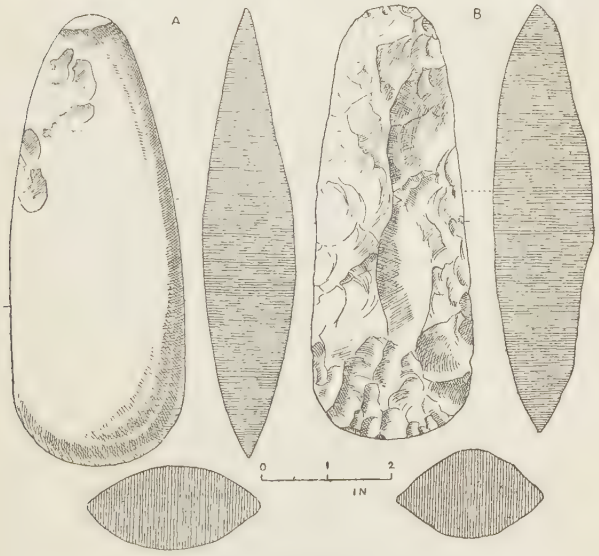


FIG. 12.—NEOLITHIC AXES

A, Polished Axe from Harefield (*Collection of J. G. Marsden*); B, Chipped Axe from Barnes (*Author's Collection*)

possession of Mr. J. G. Marsden (Fig. 12). It was found in 1916 at a point close to the Grand Junction Canal about two miles north of Uxbridge, in the parish of Harefield, when the land was being ploughed for war-time crops. The specimen, which is 7 inches long, is admirably ground and has a keen, even cutting-edge, obviously but little used. Deposit in peaty soil has given it a rich yellow-brown stain. The flake-scars which are here, and in the majority of specimens, seen upon the surface are the

marks in some cases of the original shaping of the implement (which was, of course, chipped into shape before being polished) and in others of damage subsequent to polishing. Mr. Reginald Smith has detected, in the present example, an incipient flattening of the sides, but this is only very slightly indicated. It may be noted that celts, scrapers and flakes have been found on ground belonging to Colney Farm at Harefield by Mr. Lewis Price.

In the Layton Collection there is a fine axe or adze, partly ground, 5 inches long, which was found in drainage works near the Bath Road at Hounslow; and in the same collection there is a polished flat axe, also from Hounslow; and a beautiful example in dark flint, highly polished, which is marked 'London', and is possibly a river find. Evans describes a polished celt, apparently of elongated form and compressed section, from Northwood, near Pinner. In the Sturge Collection (British Museum) there is a thin chipped specimen, $5\frac{1}{2}$ inches long, with slight ochreous stain, from Dawley. Colonel Lane Fox (Pitt-Rivers) stated that he had found, in disturbed gravel to the east of East Action Station, 'a chipped celt, without any trace of grinding'.[1] A roughly chipped axe from Hartington Road, Chiswick, is in the London Museum; and another, in the British Museum, is marked as coming from Old Southgate. In 1883 a curious find of chipped axes, varying in length from $7\frac{3}{4}$ to 9 inches, was made at Teddington: five of these were unearthed in Clarence Road at a depth of about 2 feet from the surface, planted upright and set in a row measuring about 18 inches from end to end.[2] To this list we may add a small polished axe from Yiewsley, and another in hornblende gneiss from Harlington, both in the collection of Mr. R. Garraway Rice.

Of celts found actually within the London area, apart from those dredged from the Thames, we may note the following: In the Guildhall Museum, a polished axe of basalt or greenstone from Garlick Hill, Cannon Street; and a small roughly chipped flint axe, about 4 inches long,

[1] *Proc. Soc. Antiq.*, XXX, p. 28. [2] *Ibid.*, X, p. 34.

from Shoreditch. In the London Museum, a good specimen of a polished flint axe from the Minories; one of diorite from Gower Street; a chipped axe from Great Eastern Street; another, found at Blackfriars; a small narrow celt or 'chisel' from a point near the Tower Bridge; one with incipient polish from King William Street; and a rough axe from Pall Mall. During excavations from No. 12 to No. 21, Finsbury Circus, a 'flint axe-head and a deer-horn axe or hoe' were dug up;[1] and a polished axe and a flint scraper are said to have been found in London Wall Street.

Among the few specimens from the outlying parts of London may be noted a polished celt of thick section and of a pale creamy colour from Shepherd's Bush, now in the Guildhall; a chipped axe from Kensington Gardens, near the Barracks, in the London Museum; and a ground axe in flint, stained a rich brown, also from the Kensington area, in the British Museum.

Vast numbers of these implements have been dredged out of the Thames between Teddington and Hammersmith. Most of them find their way into the hands of dealers, to whom the Thames lightermen and dredgermen bring the majority of their finds, and thence into the obscurity of private collections. A certain number of forgeries are made and sold, some of which are produced with uncommon skill. But there is one proof of antiquity which the forger cannot simulate, and that is the hard encrustation of river deposit which is often found sticking firmly to the surface of the implement.

Axes of polished basalt or greenstone, of diorite, quartzite and other hard rocks are not uncommon. Many of them, however, may be attributed without fear of contradiction to the Bronze Age.

We cannot attempt here a detailed description, or even the bare enumeration, of the many fine celts or axes which have come from the river in our district. We may, however, draw attention to a few fine or unusual examples which are to be seen in our public museums.

[1] *Arch.*, LXXI, p. 94.

Among the flint axes in the Layton Collection there is one of very peculiar outline, which may be provisionally ascribed to the Neolithic. It is 6½ inches long, of thick section, with an edge all round, and the sides curving *inwards*. This eccentric specimen was found in the Thames at Waterloo Bridge. It is not unique, for the British Museum has two similar examples, one from Farnham and the other from the Thames at Kingston. The Layton example is chipped on both faces, is of a dark ochreous colour, and has the appearance of having been somewhat rolled. The ends are not of equal breadth, and it may be noted that a convex instead of a concave outline, carried round from end to end, would give a celt of ordinary form. There are many splendid examples of the polished axe in the Layton Collection, and of these we may select, as especially remarkable, one from the Thames at Richmond ; one in dark stone from Hammersmith ; and another, also in dark stone (probably basalt), from the river near the Houses of Parliament.

In the British Museum there should be noted, in addition to the exceptional type mentioned above, a fine thin specimen with pointed butt and broad cutting-edge from the Thames at Vauxhall Bridge ; while in cases 75 and 76 of the Stone Age Room may be seen a whole series of axes from the river, both in flint and in other stones.

In the London Museum there are two very beautiful slender types, in polished stone, from Hammersmith and Battersea ; a fine polished axe of basalt from Staines ; a thin chipped specimen from the river near the Tower Bridge ; a narrow type (described as a ' chisel ') from Wandsworth ; and a large and handsome white axe in polished flint from Battersea.

A type of implement usually ascribed to the neolithic period and known as the hammer-head or mace-head has been occasionally found in our district. It is generally of a more or less circular form, and is made of quartzite, diorite, or some other stone which is durable and will take a polish. In many cases it consists of a rounded, flattened pebble, chosen on account of its convenient shape and size,

The centre is perforated for the haft, and the method by which the perforation is made is supposed to determine the age of the implement. In neolithic times, such perforations were made by slowly boring down into the stone, first from the one face to about half-way through, and then from the other. The boring was probably effected by means of sand or grit and water, worked into the stone by a rotary process, and resulting in a funnel-shaped bore : consequently, the section of the completed boring has a waisted outline, like that of two truncated cones joined together, and this is known as the ' hour-glass ' section. The disadvantage of such a boring is that the haft will not always fit firmly, and will often require a packing of some kind. At a later period, straight boring from one face was done with a bone or metal cylinder rotated at high speed. A straight shaft-hole may be taken as proof of a post-neolithic date ; but it is doubtful whether we are right in assuming that the ' hour-glass ' boring is exclusively neolithic. Stone axe-heads and axe-hammers of a type generally accepted as dating from the Bronze Age are occasionally found with ' hour-glass ' perforations, and it would certainly be imprudent to dogmatize on this point.

We illustrate three mace-heads or hammer-heads from the Thames (Fig. 13). That on the left is made from a reddish quartzite pebble, of the sort which occurs plentifully among the glacial gravels of Middlesex ; the central one is of a light grey siliceous rock ; and the one on the right of a dark yellow flinty stone. In the British Museum there is a specimen which approximates more closely to a true circle in outline.

Of special interest is a round mace-head of greyish quartzite recently found by Mr. Quintin Waddington of the Guildhall Museum at a point about half-way along the Threadneedle Street front of the Bank of England, near the inner side of the façade, and lying on the surface of the gravel below the made earth. It is dulled and flattened by use on one edge, and measures 4 and 4½ inches across. The shaft-hole is of the usual countersunk type,

with 'hour-glass' section. This is one of the very few relics of the neolithic period which have actually been found in the City area.[1] A quartzite perforated hammer-head from Queen Victoria Street, now in the Guildhall Museum, where it is assigned to the Bronze Age, is possibly of neolithic date.

Although we do not accept the 'hour-glass' perforation as a proof of neolithic date, we may tentatively ascribe to that period the less highly-finished and larger specimens of the 'axe-hammer'—an implement which is pointed at

FIG. 13.—NEOLITHIC MACE-HEADS FROM THE THAMES
A, Brentford; B, Thames; C, Chiswick
Layton Collection

one end and rounded at the other, and is thus adapted for the double purpose of hammering and cutting. In its earlier, and probably neolithic, form the axe-hammer has an 'hour-glass' boring, is roughly trimmed to shape and is seldom polished. In the collection of Mr. T. H. Knowles of Hanwell there is a particularly massive specimen of the axe-hammer, with waisted shaft-hole, found in the Thames at Walton. It is made of a coarse-grained volcanic rock, is $9\frac{3}{4}$ inches long, and weighs 9 pounds.

[1] *Antiq. Journ.*, VIII, p. 518.

The smaller neolithic implements—scrapers, points and knives—are not well represented in our district. The few finely-worked points and blades which have been found in the Thames cannot be unhesitatingly ascribed to the neolithic period ; and the same reservation applies to the surface-finds which are made in ploughed fields and elsewhere. Surface-finds are not numerous in the county, and are nearly always of indeterminate age. This uncertainty extends to the majority of surface-finds which are made in any district, and which consist chiefly of undatable pieces such as round scrapers, small used flakes, cores, chips, waste material, and implements of erratic form, with occasional finely-worked points, most of which cannot be excluded from the Bronze Age category, while certain pieces may go back to pre-neolithic times and others may be Medieval. The reader should be reminded again that the barbed and tanged arrow-head is of Bronze Age date. The types which can be recognized on their own evidence as definitely and exclusively neolithic are few indeed.

Opportunities for work on the surface occur but rarely in Middlesex. But it may be safely assumed that the inner and northern parts of the county were not habitable, or at least not desirable for habitation, in neolithic times, covered as they unquestionably were by dense forest. If neolithic relics are looked for on the surface, they should be looked for on the slopes of valleys, on spreads of alluvium, and particularly in the neighbourhood of the Thames.

In the British Museum there is a fine specimen of a curved flint knife or sickle, about $6\frac{1}{2}$ inches long, found in the Thames at Chelsea in 1868. It is finely worked on both faces and is dark and somewhat brownish in colour. The edges are not serrated or toothed, which is sometimes the case with implements of this kind, and it can be closely matched by some other specimens (not numerous) from various parts of England.

In the London Museum, among miscellaneous material of the neolithic and Bronze periods, not always very convincingly differentiated, are some fabricators or flaking-

tools (used for the removal of small flakes by means of pressure) from the river at Hammersmith. A sub-triangular flint knife with polished edges, of a type which may have been used for skinning animals, is in the British Museum, and was found in the Thames at Richmond. Another similar knife, but of oval outline and partly ground, was found in the river near Twickenham, and is now in the hands of a private collector. Another, also in a private collection, comes from Yiewsley.

A very curious flint, the purpose of which cannot be explained or even conjectured, is in the Layton Collection. In form it resembles a three-pointed star, the measurements from point to point being 7·3 inches, 6·7 inches and 6·9 inches. The flint is of irregular texture and colour, dark grey and black, with a lustrous surface. The points are not sharp but are rounded, the technique is crude and deliberate, and both faces are worked. This extraordinary flint—which we hesitate to describe as an implement—is said to have come from Southall, but there is, unfortunately, no record of the finding. Mr. Reginald Smith has already pointed out that it is not unique, but can be matched by three other specimens : one from Grime's Graves in Norfolk, one from the Isle of Wight, and one from Suffolk. It may be provisionally ascribed to the Neolithic period, partly on account of its technique and partly because one of the other specimens comes from a site (Grime's Graves) where the neolithic period is fully represented.

Neolithic objects of bone and horn are of much interest on account of their comparative rarity. But here again we must insist on the fact that dating is extremely precarious, and that no simple and reliable test can be applied in the case of isolated finds, except when the objects can be matched by those which have been found in association with others or within a deposit (such as a shell-mound or kitchen-midden) which is unmistakably of neolithic age.

We illustrate four remarkable specimens from the London Museum (Fig. 14). The dagger or point on the right is made from the cubitus bone of an ox, and represents a type which is frequently found on the Continent

and is common in the shell-mounds of Jutland. It is $7\frac{3}{4}$ inches long. The natural form of the bone lends itself to the easy production of such a pointed implement, with a ready-made grip for the hand. Our specimen is labelled 'Thames', and was presumably found near London. The notched piece of horn, or 'harpoon', from the Thames at Battersea ($8\frac{1}{4}$ inches long), is extremely interesting,

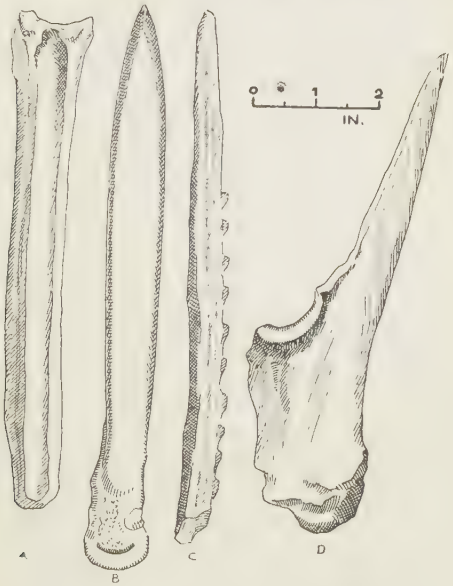


FIG. 14.—BONE AND HORN IMPLEMENTS
A, Hammersmith; B, Barn Elms; C, Battersea; D, Thames
London Museum

and of a type which is very rare in England. Like the bone dagger, it is associated with an early phase of the neolithic period in Southern Scandinavia (the Maglemose period), and more than one example has been found at Béthune in France. We may note three other specimens in the British Museum: one from Royston, Cambridge, and two from Holderness, Yorks. It is of interest to note that such harpoons correspond very closely with

those made in modern times by the Eskimo of Alaska. Another specimen of a harpoon in the same collection (from Wandsworth) should be mentioned; but the date of this is uncertain, though probably neolithic. The bone dagger from Barn Elms (Fig. 14B) is of a warm dark brown colour and has an exceedingly high, almost glassy, polish. It is an exceptional and beautiful bone implement, and is probably, though by no means certainly, of neolithic date —a reservation which must also be applied to the bone 'chisel' from Hammersmith. In the same Museum are pins and awls of bone, a so-called 'weaving tool' of bone which is highly burnished, and a remarkable piece of stag's horn which was apparently used for the manufacture of pins.

Concerning the perforated implements of deer-horn, which are found in the Thames in considerable numbers, we can only say that some types of these seem to date from the beginning of the neolithic period and are of the kind that occur frequently in the kitchen-middens (neolithic rubbish-heaps) of Denmark, but such simple tools were still used in the Bronze Age, and it is probable that most of those with a clean cylindrical perforation belong to the latter period. In some cases the horn served as the mounting for small stone axes (see examples from the Swiss lake-dwellings in the British Museum); in other cases the horn itself is the implement. The British Museum has a deer-antler socket for a stone axe, with oval shaft-hole, from Edmonton. Another socket, with a transverse hole for the shaft, and a bit of a stag's horn tine in the socket end, is in the Layton Collection—evidently the mounting for a horn pick.

The pottery of the neolithic period is of a coarse gritty texture, and in colour is usually a dull muddy brown, brown-black, or speckled grey and black. Complete vessels are rare in Britain, and the British specimens are invariably of a primitive character. Decoration is effected by means of a twisted cord, the finger-nail, pointed sticks, the bones of small birds, and other things suitable for making impressions on the moist clay. After it had been

NEOLITHIC BOWL FROM MORTLAKE
British Museum

NEOLITHIC POTTERY FRAGMENT FROM MORTLAKE
London Museum

shaped and decorated, the vessel was baked or fired in some sort of a kiln. It is probable that pot-making in neolithic times was a purely domestic craft, and likely, judging from the analogies of existing primitive peoples, that the pots were made by the women. At the same time, pottery must have been of great importance, and was, perhaps, the most indispensable manufacture of the community. Fragments of pottery, but not complete vessels, are generally found in the stone burial chambers of this period.

The neolithic pottery of the Thames valley is exceptionally well represented by three perfect examples: one from Mongewell near Wallingford in Oxfordshire, one from Hedsor in Bucks, and one from our own district at Mortlake; all three in the British Museum. These fine specimens are of the same type, though not of the same size. The type would appear to be exclusively British and to date from the close of the period.

The Mortlake bowl (Pl. III) is of a dull grey-black colour and is made of a fairly compact paste with little grit. The base is rounded, and a deep moulding separates the overhanging brim from the shoulder. Both brim and base are clearly designed with a view to utility, and the pot may be regarded as a cooking-vessel, made to rest upon the embers. A twisted cord has been used in making the simple zigzag or herring-bone decoration, and the shaping of the pot was apparently finished off with a stick. Our reproduction shows the white river-encrustation still adhering to the rim and upper part of the shoulder. The bowl is just over 5 inches in height. It was found in the river beneath a limy deposit which had been laid down over a level on which were flints, human bones, and broken pottery. Close to it was a piece of pottery made of gritty paste with a black surface and grey core, impressed with a cord pattern in parallel lines. The maximum height of the vessel represented by this fragment would have been about $7\frac{1}{2}$ inches.[1] From the same level came the splendid beaker which we describe and illustrate in the next chapter

[1] *Arch.*, LXII, p. 340.

(p. 87), and many fragments of coarse pottery. The beaker is of a well-known type which dates from the period immediately following the Neolithic in Britain, and the finding of the bowl and the beaker under the same calcareous deposit and upon the same level, not far from each other, is extremely interesting, and suggests, but does not prove, an overlap or meeting of the two cultures.

Also in the British Museum is a small cup-like bowl, clearly of the same period, presented by Sir Wollaston Franks in 1872, and said to have come from Mortlake. It is 3 inches high and $4\frac{1}{4}$ inches across the rim, and is marked with a zigzag pattern carried over the rim and for a little way down the inner surface. Another somewhat similar cup or bowl, from the Thames at Putney, is in the Royal Scottish Museum at Edinburgh: it was bought from a London dealer in 1908, and was said to have been found on the site of a pile-dwelling.

Although the evidence for these neolithic ' pile-dwellings ' in the Thames is of the most meagre and inconclusive kind, and often mainly presumptive if not wholly imaginary, the great number of pottery fragments, bone and horn tools, flint axes and other objects found at Mortlake, Wandsworth and Hammersmith does lend countenance to the idea that pile-dwellings may have existed at those places. The evidence of prehistoric occupation is particularly strong in the neighbourhood of Mortlake. There is an interesting collection of neolithic pottery fragments from Mortlake and Hammersmith in the London Museum, and we reproduce an exceptionally large piece from this series (Pl. III). This fragment is of a dull grey-black paste with an admixture of fine grit, and is roughly decorated with finger-nail and thumb-nail impressions and with a line of sunk round markings irregularly and awkwardly placed as finishing touches on the band below the brim. The fragment, which measures about 10 by $10\frac{1}{2}$ inches, is that of an unusually large vessel.

In reviewing the evidence of the neolithic period in Middlesex, we see that the relics (like those of all the periods reviewed in this book, except, perhaps, the Roman)

are essentially those of a riverside population. The region of the London Clay, corresponding with the distribution of dense forest, seldom provides traces of the neolithic people, and those traces are found on gravel, alluvium or brick-earth. It is conceivable that people of the late neolithic period living on the banks of a river, and on the little islands in the stream, with available supplies of timber, may have built pile-dwellings of the sort found in the Swiss lakes and elsewhere ; but such dwellings are better adapted for lakes than for the varying level and force of the flowing water of a river. Floods would have been times of inconvenience, if not of positive disaster, to river pile-dwellers, as they still are to incautiously placed bungalows. Perhaps the pile-dwellings were used only as summer residences. We have already spoken of the evidence for such dwellings ; and we would add, as a reminder, that the discovery of the Swiss dwellings incited our archaeologists to produce evidence, good or otherwise, of similar things in this country ; and that the stumps and stakes of all periods which are preserved in our river mud are very convenient supports for all kinds of theories.

These considerations, however, do not rule out the possibility, or even the probability, that some of the crudely pointed stakes which are found in the Thames are of prehistoric date. But the objects found among them are seldom, if ever, exclusively those of one period, and no reliable conclusion can be formed as to the age of the stakes themselves, or as to their original purpose. It should be noted, that no stakes have been found in the river at Mortlake, where prehistoric relics and clear proofs of occupation, including much pottery, have been found, perhaps in greater abundance than in any other part of the river. We certainly cannot say that the association between prehistoric material and the stakes is entirely fortuitous ; but we cannot say that any of the stakes are assignable to any given prehistoric period, and we have clear evidence that settlements of considerable size existed in places where stakes or piles have never been found. It

would seem that the only datable wooden remains in the river are those which have been proved to belong to the Romano-British period. We shall discuss those remains in our chapter on Middlesex in Roman times.

At the present day, when dredging operations are confined to the central channel of the river, leaving the sides untouched, very few antiquities are discovered, and dredging methods are not calculated to be of much use to archaeology. We owe a great deal of our knowledge of the antiquities from the London Thames to the skill, patience and vigilance of Mr. G. F. Lawrence, and to the enthusiasm with which, for the greater part of a busy life-time, he has sought after and preserved relics of all kinds and of all periods.

For Further Reading : J. Evans, *Ancient Stone Implements of the British Isles*, 2nd ed., 1897 ; T. D. Kendrick, *The Axe Age*, 1925 ; J. de Morgan, *Prehistoric Man* (trs.), 1924 ; *British Museum Guide to the Stone Age*, 3rd ed., 1926 ; F. G. Parsons, *The Earlier Inhabitants of London*, 1927.

CHAPTER V

THE BEAKER FOLK AND THE BRONZE AGE

WE cannot say definitely at what time and by what means the use of metal was introduced to this country. But we must remind ourselves here, as we did in the last chapter, that the use of a new material in prehistoric times does not imply a sudden revolution in methods or the appearance of an invading race. On the contrary, we find in these islands the same gradual substitution of metal for stone and the same gradual evolution of form which are to be observed on the Continent.

The unsolved problems of the original discovery or discoveries of metals and of the spread or simultaneous growth of the arts of metal-working do not concern us here. Bronze was used by the Egyptians at least as far back as 2500 B.C., and pure metals, such as gold and copper, were known at a much earlier date. It is generally assumed that the use of copper precedes that of bronze.

The New Stone Age of Britain is followed by a period, or a culture, assigned to a people who are known as the Beaker Folk. The name, which is open to many objections, is derived from a type of pottery vessel which dates from the close of the neolithic period, and which is associated with handsome flint knives, and occasionally with the earliest form of the bronze dagger.

Prehistoric periods cannot be dated with certainty. We may conjecture that the Beaker phase was reached in this country by about 1800 B.C., that it was marked by the invasion or gradual penetration of a people entering Britain from the east, and that it was followed some centuries later

by the full Bronze Age. It is possible that a Celtic people (the Goidels) reached Britain by 1000 B.C. But we have little knowledge concerning the early Celtic migrations, which probably affected this country towards the close of the Bronze period; and we must remember that the term Celtic is only applicable to groups which used a particular kind of language. The population of the British Isles has been mixed freely with imported stocks from neolithic times onward.

One important consideration, affecting the whole of the Bronze period, must be impressed upon the reader. The manufacture of stone implements was not only continuous throughout the Bronze Age, but the finest examples of chipped flint and of polished stone belong exclusively to the age of metals. This is not surprising when we consider the rarity and value of metal in primitive societies. In addition to this, there is the innate tendency to carry any given technique to its fullest possible development, and that tendency may very well account for the exquisite flint knives of the Beaker and Bronze periods, which are so finely worked and so fragile that they can hardly have served any practical need.

The Beaker period is represented in Middlesex by several good examples of pottery and numerous flint knives, and the Bronze Age proper by an immense number of bronze tools and weapons, as well as by other objects, mostly from the Thames, and by a few burial-sites.

The beaker itself is usually made of clay mixed with sand or finely powdered stone. It is typically from 6 to 8 inches high, of goblet form, with sides sloped inwards below the brim and then bulging. Decoration is applied by means of a stick or some other pointed or notched tool, twisted cords, or the finger-nail, pressed on the moist clay before firing or baking; it consists, almost without exception, of arrangements of straight lines placed in horizontal bands of chevrons, lozenges, zigzags and other purely 'geometric' figures. The surface of the beaker is sometimes carefully smoothed or polished.

These vessels are characteristically associated with unburnt burials, but the examples from our own district, in so far as we have any exact information about their finding, have all come from the Thames. It is regrettable that one of the best of these, in the Layton Collection at Brentford, has no history; and although we are justified in assuming that it was found in the river, probably in the neighbourhood of Kew, we cannot say definitely that such was the case. It is just over 6 inches high, of a light brown colour, with a simple but effective decoration of lines and chevrons filled in with some white material. On its base there is a cruciform design—by no means an uncommon feature in Bronze Age wares of various types and periods. In the same collection there is the greater part of another beaker, 8 inches high and with plain 'finger-nail' decoration, said to have been found in the Thames at Old England, Brentford. There is also a small specimen from the river at Hammersmith, and one of globose form, about $6\frac{3}{4}$ inches high, of a type which Lord Abercromby, the author of a famous work on British Bronze Age pottery, associated with domestic use.

We reproduce a magnificent specimen in the British Museum from the Thames at Mortlake (Pl. IV). It is a perfect example of the beaker, with a typical and graceful outline, though its decoration is relatively plain, consisting of bands of lines, not very firmly impressed, alternating with bands of short strokes. Its colour, a dull dark grey, is somewhat unusual in the case of a beaker. The height is about $9\frac{3}{4}$ inches. This beaker, and the one next to be described, was found under a thin calcareous layer which was spread over a deposit containing, in places, flints and human bones. We have already referred to this, and to the proximity of the neolithic bowl, in the preceding chapter (p. 81).

The British Museum has another beaker from Mortlake. This is a plain goblet, a little over 5 inches high, of the usual reddish colour. It is of cup-like form with the outward slope of the brim strongly marked. The decoration consists of plain horizontal lines, incised at regular intervals

from the top to the bottom.[1] Another Mortlake beaker is in the London Museum. It is about $7\frac{1}{2}$ inches high, of a fresh light reddish-brown colour, very well preserved, and with typical decoration. The same collection has recently acquired another beaker, also from Mortlake, opposite the Red House : a small specimen, badly broken, showing traces of damage by fire. Fragments of beakers and of other types of Bronze Age pottery, from Hammersmith, Mortlake and Brentford, are shown in the London Museum.

The typical burials of the Bronze Age in Britain, subsequent to the Beaker period, are cremations, with ashes or calcined bones placed in pottery vessels of special make. These vessels, generally protected by rectangular stone enclosures known as cists, are set within or below mounds of earth or cairns of stone ; they are frequently inverted over the ashes and sometimes have smaller vessels inside them. Known to archaeology as ' cinerary urns ', these funerary vessels represent a very important class of Bronze Age pottery. The average height of typical cinerary urns may be taken as about 12 inches, but the largest examples are twice this height or more, and the smaller ones considerably less. We have only one recorded instance within our area (at Teddington) of a Bronze Age burial in a mound or barrow, and here, unfortunately, the pottery was not accurately described. We shall give an account of this barrow later.

The ' bucket ' type of cinerary urn associated in the southern part of Britain with burnt burials of the later Bronze Age, and perhaps in use at the beginning of the Early Iron Age, is well represented in our district by a discovery of peculiar interest made in 1870 at Sunbury Common near Ashford.

The site here revealed was that of a ' flat cemetery ' or urn-field—that is, the urns were not in or beneath any structure raised upon the surface of the ground, but were merely sunk in small pits or graves. The actual site was

[1] Compare with a type from Erith, Kent, figured by Abercromby, *Bronze Age Pottery*, I, Pl. VII, fig. 36.

in a field west of the by-road from Feltham Hill and north of the main road from Staines to Hampton. Here, not fewer than thirty-two urns had been placed on the gravel at a depth of from 10 to 18 inches from the surface. They were discovered, but not all at one time, when the field was ploughed ; and as most of them were inverted, their bases were broken off and scattered in pieces by the ploughshare. According to Mr. Edward Roberts, ' as many as five or six different kinds of urns, and two kinds of paste ' were found.[1] The diameters were from 6 to 11½ inches, and the height probably up to about 18 inches. One urn, of globose form (belonging to the ' Deverel-Rimbury ' type), with a crude pattern of lines and strokes, is made of a finer paste than the others, which are of a coarse, gritty ware, speckled with bits of crushed stone and of a buff or reddish colour. But it must be remembered that the making of large pots by hand requires no small skill, and a gritty paste is necessary in order to give cohesion and to prevent cracking when the pot is fired.

Some of the pots have small projections or bosses on the sides ; others have a raised band a few inches below the top, crudely decorated with indentations ; and one has a band of semicircles in relief. The sides are nearly straight, and in one or two cases almost parallel, though the mouth of the pot is usually a few inches wider than the base. Several of the vessels had been badly cracked at the brim before they were placed in the ground, and in such cases holes were drilled on each side of the crack and close to the brim, in order that the broken edges might be bound together, and the pot thus made serviceable. Our illustration of an urn from Acton shows two of these ' repair-holes '.

Most of the urns had been placed in the ground in lines running east-west, but there were two semicircular groups facing east. Nearly all were inverted, and simply deposited in small pits dug in the loam down to the level of the sandy gravel.

It appeared to those who investigated the site that, in

[1] *Journ. Brit. Arch. Assoc.*, XXVII, p. 449.

many cases, the bodies had been burnt, or that the final cremation had taken place, in the actual burial-pits, and that 'the partial burning of the pottery may have been produced by the heat contained in the earth forming a sort of kiln'. They noted the presence of a few calcined flints, and observed that the soil below the urns had been saturated with some dark matter—no doubt the organic residue of imperfect cremation. But two large hollows were found, in which cremation had obviously taken place. It was therefore concluded that 'the cremation sometimes took place in a pit, and the embers were then placed in an upright urn. At other times the cremation took place in a small hole, and the urn was inverted over the embers while hot. In the latter case the bottoms of the urns have been ploughed off, and the loam washed in.' It seems to us improbable that the whole process of burning the bodies took place in the holes which contained the urns, and more likely that the embers were brought there, while still glowing, from a common burning-ground.

No associated objects of metal were found. A few flint flakes were described as 'doubtful'; and nothing was observed, in addition to these, except a few animal bones. Twenty-six of the Ashford cinerary urns are shown in the British Museum.

It is of interest to note that urns were discovered at Sunbury towards the end of the eighteenth century, and two of these are illustrated in Gough's edition of Camden.[1] The engravings are clearly incorrect, but are intended to represent two urns of the Ashford type; one with bosses or holes below the brim, and the other with a flange and a looped pattern above it.

Comparison with the Ashford pots is immediately suggested by another interesting find made in 1883 at Mill Hill Park, Acton. Here, while digging for the foundations of houses in Avenue Gardens, a group of cinerary urns, closely resembling the Ashford series, came to light. These all contained burnt bones. Six of them are exhibited in the British Museum, and of these we may note one 12

[1] *Op. cit.*, 1806, I, p. ccvi.

BEAKER FROM MORTLAKE
(9¾ IN. HIGH *British Museum*

CINERARY URN FROM ACTON, WITH REPAIR-HOLES
(16½ IN. HIGH) *British Museum*

inches high with a decorated flange, and the fine specimen reproduced (Pl. IV), which is 16½ inches high and has 'repair-holes'.

Urns of the same 'bucket' type were found in 1913–14 at Messrs. Bowyer's gravel-pits at Yiewsley, and twelve of these, in a fragmentary condition, but repaired with great skill by the owner, are in the collection of Mr. R. Garraway Rice. These are evidently the relics of another 'flat cemetery' of the Ashford type, and it is to be regretted that we have no detailed account of the circumstances in which they were found. All are plain, with the exception of one which has a line of small bosses below the brim, and in shape, paste and colour exactly resemble the Ashford and Acton urns.

Yet another find of cinerary vessels of the Ashford type was made during work on the Brent Reservoir at Kingsbury,[1] but again we have no particulars as to their discovery or position. Of the type, however, there can be no question, for they were seen by one of the most capable of our London antiquaries, Mr. G. F. Lawrence, who was himself concerned in the finding and preservation of the Acton series.

The collected evidence here presented is sufficient to show that 'flat cemeteries' of the late Bronze Age must have existed in at least four places within the county, and that the pottery is of the same type in every instance.

The Middlesex urns should be compared with others of a like sort from Hampshire, Dorset, Wiltshire and Berkshire—particularly with a large series from Dorset illustrated by Abercromby.[2]

Another type of Bronze Age funeral pottery, known as the 'food-vessel', and belonging to the middle of the period in Britain, is only represented in our district by a few broken fragments. Of these we may note one: a rather unusual specimen from the Thames at Wandsworth, near Hammersmith Bridge, and now in the Layton Collection. The height of the fragment is 4 inches, and the

[1] Information from Mr. G. F. Lawrence.
[2] *Bronze Age Pottery*, II, Pls. LXXXIX and XC.

vessel probably had a diameter of about 7½ inches. It has ornamental depressions punched in below the moulded rim, and is decorated both inside and out with a herring-bone pattern ' produced by impressing a thin cord closely wound round a thicker one '.[1] The ' food-vessel ' usually accompanied unburnt burials, and was clearly intended to provide for the service or nourishment of the deceased. A small pot of coarse paste, 3½ inches high, and with projecting bosses or nipples, in the British Museum, comes from the Thames at London and was classed by Abercromby among the ' food-vessels '. The classification is open to question. It may be compared with a very similar pot in the London Museum from Hampton Court.

Some broken pottery, probably of Bronze Age date, and so described by Mr. Reginald Smith, was found at a depth of 2 feet below the surface at Hanwell.[2]

We have referred to the Bronze Age barrow or burial mound at Teddington. This barrow, or rather the remains of it, was excavated in 1854, at a time when such doings were not recorded with minute accuracy, and the published account of the excavation [3] lacks those detailed observations which would, or should, form part of such an account at the present day. But since there is no other record of a barrow excavated within our district, and indeed no other proof of the existence of a Bronze Age barrow in Middlesex, we need no excuse for transcribing the essential facts, and for adding one or two derived from other sources.

The barrow stood by the side of the road called Sandy Lane, leading from Hampton Wick to Bushey. The lane seems to have been made, or extended, about 1835, for we are told that a part of the mound which intruded upon it was removed in that year. It may have been from this time, and in consequence of bones being found during the removal, that popular tradition associated the mound with the burial of a man and a horse, and with that of

[1] *Arch.*, LXIX, p. 12.
[2] *Journ. Brit. Arch. Assoc.*, New Ser., XIII, p. 123.
[3] *Arch.*, XXXVI, p. 175.

victims of the Great Plague. The field in which it stood was known as Barrow Field.

When the Surrey Archaeological Society invaded the county of Middlesex for the purpose of excavating this barrow they invited the assistance of Mr. J. Y. Akerman, the Secretary of the Society of Antiquaries, and it is from his account, published in the *Archaeologia*,[1] that we quote here.

The remains of the mound measured 12 feet from the level of the field to the apex, 52½ feet from north to south, and 96 feet from east to west. It had therefore been a mound of considerable size. Assuming that it was originally of circular plan, like other Bronze Age barrows, the difference in the two length measurements is accounted for by the removal of a large part of it. A trench was cut into the north side, where they found 'bricks and tiles'. Then another trench was made in the south side.

'Traces of combustion, extending several feet around, were now perceived, the sand of which the tumulus was composed being burnt to a brick colour, while fragments of charcoal were distributed in various directions. In the very centre of what we must consider as the site of the funeral pile, was a heap of calcined bones, upon which lay the bronze blade of a knife or dagger. . . . No traces of an urn were observed; but scattered on the floor of the grave were several fragments of flint.'

It was observed that the whole barrow was made of sand 'remarkably free from flints or stones . . . nor was the mass of calcined bones protected by any heap differing from the rest of the mound'. At no great depth from the surface of the barrow 'the workmen found a portion of the rim of a large urn'; and later they came across 'fragments of a very large and rudely formed half-baked urn . . . and some portions of calcined human bones. This interment was about 4 feet below the apex of the mound, and had evidently been disturbed.' Then the excavators came on a flint 'hatchet head' and 'the bones of an adult buried superficially'. No drawing of the 'flint hatchet' seems to have been published, but an excellent

[1] *Arch.*, XXXVI, p. 175; also LXI, p. 112.

plate of the bronze dagger, etched by the Rev. T. Hugo, will be found in the first volume of the *Transactions of the London and Middlesex Archaeological Society*, facing page 140. We reproduce an outline of the dagger, based upon this etching (p. 101). The dagger was damaged by ' incautious handling ', but the plate shows it to have been of a type occasionally found with cinerary urns in the south of England.

The former existence of other Bronze Age mounds in Middlesex cannot be proved. The name Tothill, preserved in Tothill Street, Westminster, may (or may not) indicate the former presence of such a mound: the conjecture that it does refer to an artificial mound of some kind is supported by a charter of Æthelred which gives the boundaries of the Abbey lands and takes ' the mound ' as one of its landmarks. ' Barrow Point ' at Pinner has a similar implication, and Stukeley mentions a barrow which was removed at Brockley Hill. Another barrow, or perhaps a group of barrows, of uncertain period, stood on Primrose Hill, on the ground now occupied by the covered reservoir. The tumulus on Hampstead Heath, which will be described in our last chapter, cannot be attributed to the Bronze Age.

Two of the earliest types of bronze implement found in this county are the flat axe and the plain dagger-blade. The former is derived from the stone axe or celt of neolithic times; but the outline of the sides is almost invariably concave, whereas in the stone prototype it is almost invariably convex. From the flat bronze or copper axe was evolved a series of metal implements, all characterized by a more or less convex cutting-edge, but differing in the method of hafting. The first stage in evolution is marked by the drawing together of the sides of the axe, which develop into flanges, first produced by hammering out the sides, and then cast in the mould; the second by the growth of a heel or stop-ridge between the flanges; and the final stage by the squeezing together of the flanges. The loop at the side of the implement, which is first seen in the later forms of the second group, is a secondary

feature. It is extremely doubtful whether the axe with the complete socket—the 'socketed celt'—represents the outcome of an evolutionary process, and it seems more probable that we have here an independent invention, reaching this country, together with the leaf-shaped sword, about 1000 B.C.[1]

In English archaeology, the term celt is sometimes applied to the whole series; but the term *palstave* (from a supposed Old Icelandic word, *pállstafr*, a spud or turf-hoe) is generally used when describing the flanged axe with a stop-ridge. We may note that the modern Scandinavian archaeologists call them 'shaft-celts', and that the Icelandic *pállstafr*, which is practically obsolete, seems to have meant not a spade but some sort of missile weapon.

Bronze palstaves and celts were hafted in various ways, sometimes at an angle with the haft and sometimes in a straight line with it. The haft usually had a branched or curved end, slit to receive the implement. A socketed celt in its oak handle was found in 1902 during the rebuilding of Kew Bridge: a photograph of this is shown in the London Museum. Remains of the wooden haft are not infrequently found in the sockets. The loops of the flanged and socketed types were probably intended for lashing or binding to the haft, but may have served other purposes as well. Rings have occasionally been found passed through these loops, and one of these examples, from Kensington, will be mentioned later.[2] It has been suggested that spare celts may have been carried strung together by a thong or cord passed through the loops; and this, even if it does not indicate the primary intention of the loops, is likely enough. Déchelette observes that in certain 'hoards' palstaves and celts have actually been found fastened together by wire passed through the loops. The purpose of hafting would have been better served by loops at both sides; but although palstaves with two loops

[1] See an important paper by H. S. Harrison in *Man*, XVI, p. 216.

[2] See *Arch.*, XVII, pl. LIV; *Arch. Journ.*, XVIII, p. 164; Akerman's *Archaeological Index*, pl. IV, fig. 30; Evans, *Bronze*, p. 158; *L'Anthropologie*, XVI, p. 160.

do occur in England, they are exceedingly rare. In all probability the use of palstaves and celts was peaceful rather than warlike, and we may suppose that they served in cutting down timber, in agriculture, and in other ordinary occupations. As weapons, they would not have been very efficient; but since the axe plays a part in primitive warfare it is conceivable that they were sometimes used in battle.

It is not easy to arrange the daggers in a chronological or evolutionary sequence, though it is obvious that fine examples of casting belong to the later periods. The dagger, an effective and easily concealed weapon, has been used at all periods, and its two essentials—a short sharp blade and a handy grip—are not difficult to produce. In its earliest form the metal dagger is merely a thin flat triangular blade, riveted to a hilt of bone, horn or wood. Between such a form and the beautiful ribbed specimen from Hammersmith in the British Museum (for example) we must assume the lapse of a very considerable period.

Both types—the axe or celt and the dagger—are represented in our district by numerous and fine specimens, nearly all from the Thames.

Apart from a few examples found with ' hoards ', to be described later, the number of celts and palstaves not found in or near the river is very small. In the *History of Enfield* by C. W. Whitaker there is an illustration of a socketed celt alleged to have been found in 1806, 12 feet below the surface of Enfield Marsh. A looped palstave is said to have been found in Harewood Square, London, 7 feet below the surface; and another, in the British Museum, comes from a depth of 18 feet on the east side of the Minories. A plain flat axe in the British Museum was found near the Tower of London, and a looped palstave is labelled South Kensington. In the Guildhall there is a looped and socketed celt from St. Mary Axe: another is said to have been found at Austin Friars, and another in Bridgwater Square. A palstave, found among burnt piles on the edge of Thorney Marsh, Buckingham Palace Road, is in the London Museum. Mr. T. H. Knowles

of Hanwell has a socketed celt from Hounslow ; and mention should be made of another, with remains of a wooden haft, found in Horseferry Road, Westminster, and now in the Horniman Museum at Forest Hill.

The early flat axe is comparatively scarce. In the

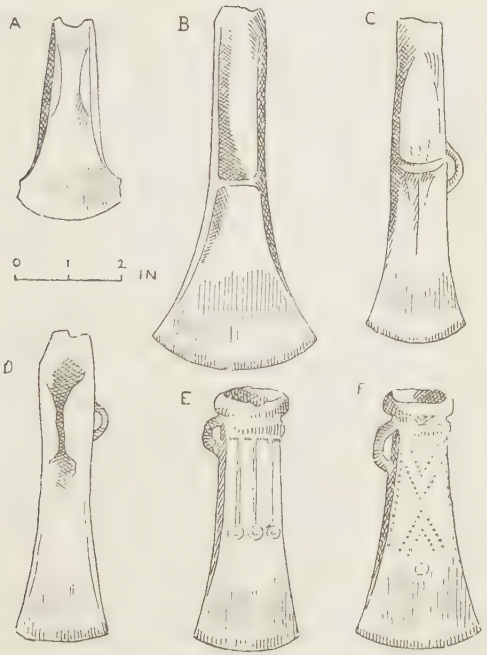


FIG. 15.—BRONZE AXE, PALSTAVES AND SOCKETED CELTS FROM THE THAMES

A and F, *Layton Collection* ; B, C, D, *London Museum* ; E, *British Museum*

British Museum there is a good specimen from the Thames, crudely decorated on the faces of the blade by criss-cross lines with short strokes between them, and another dredged from the river opposite Price's Candle Works at Battersea. In the Layton Collection is the flanged axe illustrated in Fig. 15, which was found in the river at Kew, and a flat specimen from Mortlake. Another, from Yiewsley, is

in the collection of Mr. R. Garraway Rice. The transition from the flat axe to the palstave is well shown by specimens from the Thames at Lambeth, the mouth of the Wandle, Mortlake and Putney Bridge in the London Museum.

Palstaves, though far less numerous than socketed celts, have been dredged out of the Thames in considerable numbers. They come, indeed, from practically every part of the river where antiquities have been found, and to compile a list of them would serve no purpose in the present volume. Among the more remarkable examples which may be seen in public collections we would choose the following :

(1) In the British Museum. A particularly fine specimen, with a raised rib on the face of the blade, from the Thames near the mouth of the Wandle. Another fine specimen from the Thames at Isleworth ; and two others from the river at Whitehall and at Kingston. From Chiswick Eyot comes a small flanged celt with wide cutting-edge and a rudimentary stop-ridge ; another, with low flanges, is from Eel Pie Island, Twickenham.

(2) In the London Museum. A winged palstave of Continental shape, from the site of an alleged pile-dwelling at Syon Reach near Brentford. A specimen without loop (a rare type) from Hammersmith, having the face of the blade deeply grooved, leaving a median rib which runs to the cutting-edge.

(3) In the Layton Collection. A specimen with very wide cutting-edge, found opposite Cadogan Pier, Chelsea.

The socketed celt, though not found in this country in such prodigious numbers as in the hoards or ' depots ' of Brittany and Normandy, must be reckoned among the commonest relics of the Bronze Age in England. In our district, hundreds of specimens have come from the Thames.

Examples of this type from the river show few variants of shape, and their decoration, often pleasing and well considered, is never elaborate. The opening of the socket is usually rounded, but sometimes approximates to an angular form. The loop, which may be regarded as a

regular feature of the type, is placed just below the moulded neck of the socket ; but we are able to cite one exceptional specimen in which it is absent. The length of typical specimens ranges from about 4 to 6 inches. A bronze celt newly dredged from the river has usually a greenish patination and a roughened or corroded surface, and may have a white river-deposit adhering to it : its colour and surface when exhibited will depend upon its treatment in the hands of workmen, dealers or collectors. And here we may note the unhappy results which are so often caused by the desire to ' improve ' the appearance of ancient things by disastrous polishing, scraping and varnishing.

The most effective and characteristic ornamentation of this implement is shown by arrangements of lines and circles on specimens from the river at Kingston (Fig. 15, E),—and it may be observed that such examples appear to come chiefly from this part of the river. The decoration, moulded in low relief, consists of small circles or concentric rings, usually with a dot in the centre, forming the terminals of one or more lines or ribs. This pattern, which we are justified in describing as locally marking the Kingston type, is found elsewhere in Britain, and in France. Four examples, of which three, and almost certainly the fourth, are from Kingston, are illustrated by Evans [1] and may be seen in the British Museum. The Kingston type was placed by Professor Montelius in his fifth and final division of the British Bronze Age.[2]

The earlier form of the socketed celt, supposed to indicate traces of an evolutionary process, is represented by a small but beautiful specimen in the Layton Collection from Old England, Brentford. This is about 3 inches long, of a golden appearance, and has semicircular mouldings lapping inwards on the face below the socket. These mouldings are perhaps vestigiary traces of the wings of the preceding type, and seem to provide an interesting example of the process by which a feature originally

[1] Evans, *Bronze*, Figs. 137, 140, 141, 142.
[2] *Arch.*, LXI, pl. XVI, fig. 40.

serving a definite function becomes purely decorative. The same feature appears in other specimens, both English and Continental. But we must not suppose that any one type was exclusively in use at any one period. However distinct an evolutionary process may be, we should remember that earlier and later forms were in use contemporaneously : a fact which will be conclusively proved when we come to examine the ' hoards ' or contemporary deposits of the Bronze Age.

Many good examples of the socketed celt from the Thames in various parts of our district, including some erratic or exceptional specimens, are to be seen in the principal London museums. The best assembly of types is that displayed in the British Museum, and to this we would specially direct the attention of the student.

The dagger is also best represented in the British Museum, where a magnificent series from the Thames is exhibited in a table-case.

Of these, we should note an interesting specimen, from a locality not recorded, but certainly from the Thames, with a handsome metal hilt still attached to the blade : both hilt and blade are elaborately decorated, partly by moulded lines and partly by rows of small dots made with a punch. Engraved ornamentation is not a common feature on British daggers of the Bronze Age, and the decoration on the blade from Richmond (Fig. 16, B) is therefore of special interest. A masterpiece of moulding and casting may be seen in a specimen from Hammersmith, with a clean, golden surface in a wonderful state of preservation. In most of the specimens, holes are pierced in the broad end for the rivets attaching the blade to the hilt, but in some cases there are notches serving the same purpose.

An early type of Bronze Age weapon known as the halbert, and consisting of a broad ribbed blade, larger than the dagger but sometimes of approximately the same form, is shown by a specimen from Hammersmith in the Layton Collection (possibly a large dagger), and an interesting example of copper in the London Museum.

From the dagger was evolved a longer type of thrusting and piercing weapon which is known as the rapier [1]—a weapon which was not superseded by the sword, but con-

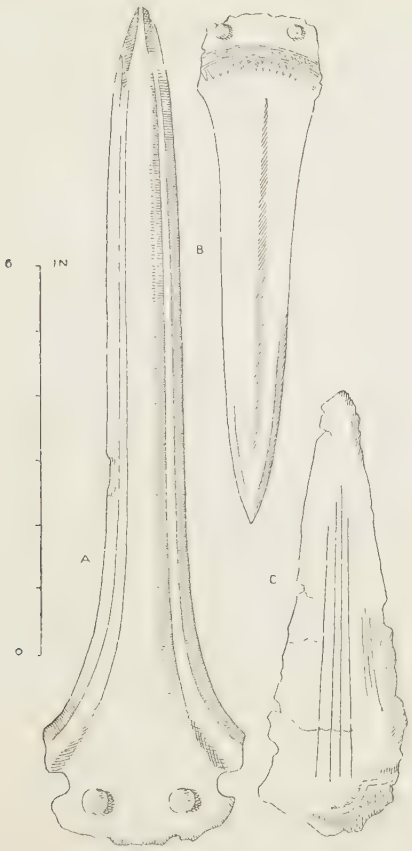


FIG. 16

A, Bronze Rapier, Thames at Kingston; B, Decorated Dagger, Thames at Richmond (*British Museum*); C, Dagger from Barrow at Teddington

tinued in use up to the end of the Bronze period, and in later examples showed a degree of skill in the casting, an

[1] Now called 'dirk' by some authorities.

elegance of line and perfection of balance which are truly admirable. Between the dagger and the rapier there is a long series of intermediate forms, and we need not be dogmatic as to where the dagger ends and the rapier begins. There are small daggers with slender blades which exactly resemble rapiers in outline, though not in size; and rapiers with broad blades are merely enlarged daggers. A good example of the miniature rapier was found at Cornhill, and is now in the London Museum. We illustrate a typical form of the shorter rapier, of a light golden bronze, from the Thames at Kingston (Fig. 16, A). In the hilt end are two rivets in position, and two other rivets were provided for by the notches. Examples of the rapier from various parts of the Thames within our district may be studied in the British Museum, the London Museum, and the Layton Collection. Typical specimens range in length from about 12 inches to 18 inches. As in the case of daggers, holes or notches, sometimes only the one or the other and sometimes both, are provided at the broad end for the rivets attaching the grip.

From the rapier we may proceed to the consideration of the sword of the late Bronze Age, probably introduced to this country about 1000 B.C., which is not only one of the most beautiful productions of that period, but one of the most graceful weapons which ever came from the hand of a skilled craftsman. At the same time, it must be admitted that the poise or balance of the weapon leaves much to be desired. It is beautiful rather than practical.

The sword is usually described as 'leaf-shaped', in reference to the swelling outline of the blade. It is best represented in Britain by the numerous examples which have been found in the lower Thames, chiefly from places within our own district. The blade and hilt-plate are cast in one piece, and the latter, which is flat, has either slots or holes, or both, for the rivets. The length over all is usually about 24 or 25 inches: some specimens are less than 18 inches in length, and others reach 30 inches or more. The grip, whether of horn or wood or some other

material, was pierced with holes corresponding to the holes or slots in the hilt-plate, and the rivets, after insertion, were beaten out flat at each end with a hammer. In rare instances, none of which is known to come from our district, the grip itself is of bronze. There is in the British Museum the upper part of a sword with a portion of a metal grip attached to the wings of the tang or hilt-plate by two rivets, which is said to have been found in the Thames; but this is doubtful.

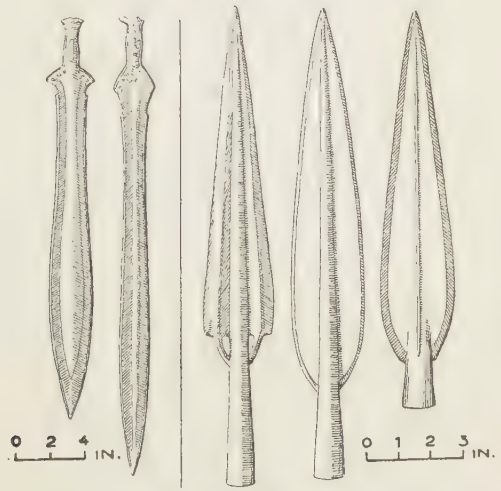


FIG. 17.—BRONZE SWORDS AND SPEAR-HEADS FROM THE THAMES
British Museum

The exquisite form of the blade can be seen by a glance at our illustration (Fig. 17), as well as the characteristic outline of the hilt-plate. Generally, the blade has a double-convex or lenticular section: exceptionally, it has a raised rib down the centre. In most cases the blade is notched immediately below the hilt-plate where the edge begins, and the edges are evenly flattened out so as to form a narrow groove or fluting. The point was originally as sharp as the armourer could make it. In com-

parison with the rapier, the sword had this great advantage, that it could be used for slashing and cutting as well as for thrusting. Many of the blades found in the river have been violently bent or twisted, and some are snapped in two. The two halves of the same broken sword have occasionally been found in different parts of the river.

Leaf-shaped swords have been found in such profusion in the bed of the Thames from Staines to the Victoria Embankment as to indicate the existence of a Bronze Age riverside population of warlike habits. As their discovery is a matter of chance, and finds have been most numerous where the river is most frequently dredged or in the neighbourhood of bridges, we cannot form a just idea of their distribution. They occur most commonly at some 10 to 20 feet towards mid-stream from the present low-water mark. Records of the depth at which they are found are seldom available, but two specimens formerly in Dr. Root's Collection (now in the Museum of the Society of Antiquaries) are said to have come respectively from depths of 7 and 9 feet below the gravelly bottom; and these depths are confirmed by the account of the finding of a spear-head in 1868 'embedded in the gravel and peat . . . 8 feet below the bed of the river'.[1] Rapiers in Dr. Root's Collection were described as coming from the Chelsea Waterworks (Kingston) at depths of 6, 8, and 10 feet below the surface of the 'blue clay'.[2] But depth in a river deposit is no proof of antiquity, and a seventeenth-century sword in the Root's Collection was found 12 feet deep in the clay. As far as the present writer is aware, the bronze swords found in this district come, almost without exception, from the Thames. A specimen with unusually straight edges is said to have been found within the City, but no locality is given, and the find is doubtful.[3]

There are no fewer than thirty-three specimens of the Bronze Age sword, including some bent and broken blades, in the Layton Collection at Brentford; but although it is to be presumed that all of them come from the river,

[1] *Proc. Soc. Antiq.*, XII, p. 274. [2] *Ibid., New Ser.*, I, p. 83.
[3] *Antiq. Journ.*, VII, p. 298.

too many of them are without labels. One of these is a sword of rare type, 29 inches long, with sides running parallel until some inches from the end, when they taper to an elongated, tongue-like point: no locality is given. The type occurs in France, and it is possible that the sword belongs to the Hallstatt phase of the Early Iron Age (see next chapter), as a broken sword from Staines, with a rather similar 'carp's tongue' point, now in the London Museum, certainly does.

In the same collection there are magnificent examples of the leaf-shaped sword, from Strand-on-the-Green, Twickenham, Old England (Brentford), Wandsworth, and Hammersmith Mall. This type of sword may be well studied in the Layton Collection, but there is no lack of fine specimens elsewhere. Mr. T. H. Knowles of Hanwell has a particularly graceful specimen from the river near Twickenham, 23 inches long over all, with two rivets in the central slot of the hilt and two others in each wing. There are many notable swords among those exhibited in the British Museum, and of these we may mention two remarkably handsome ones from the Thames with engraved lines running parallel to the edges of the blade. The study of type-variation cannot be considered here: it is a very fascinating study, and one for which there is abundant and interesting material.[1]

Bronze Age swords were carried in sheaths or scabbards which appear to have been usually made of wood, occasionally provided with long terminals of bronze. Examples of these bronze scabbard-ends, still containing the sword-blade, may be seen in the London Museum and in the Layton Collection—the first from Staines and the second from Isleworth. There are also several specimens in the British Museum. It should be noted that the bronze chape or terminal with wide wings appears to date, in this country, from the period immediately preceding the Early Iron Age, and abroad is definitely associated with the beginning of the Iron cultures (see next chapter, p. 121).

The fine craftsmanship of our best leaf-shaped swords

[1] See *The Bronze Age and the Celtic World*, by H. J. E. Peake.

is certainly rivalled by that of some of the spear-heads. Like the sword, the spear-head of the late Bronze Age was produced in this country in vast numbers, and many of the most remarkable specimens have been found in the Thames. All that can be said concerning the bronze spear-head in Great Britain will be found in an admirable and fully illustrated paper by Canon Greenwell and Mr. Parker Brewis in Volume LXI (1909) of the *Archaeologia*.

Our district has not yielded an example of the early tanged form of the spear-head, which is exceedingly rare, and may be confused with the dagger. All the specimens from the Thames are of socketed type, as are all the weapons which are definitely classed as spear-heads or lance-heads.

The casting of a hollow socket is a process which requires the careful insertion of a core in the mould, and which implies a high degree of skill in the founder. Here again we have reason to admire the ability and resource of the Bronze Age metal-workers. Not only is the fully evolved spear-head a perfect example of casting; it is of shapely proportion, and one of the most effective missile or thrusting weapons ever made.

In length, the spear-heads from our district (and they are representative of British types in general) vary greatly —from 3 or 4 inches to 16 inches and over. The earlier forms are frequently supplied with loops opposite to each other on the socket: in the course of evolution these loops approached the blade; then formed a part of it, immediately beneath the wings; and were finally placed in the faces of the blade, on each side of the rib or extension of the socket, where they seem to have assumed a purely decorative character. In its later and most perfect forms, the spear-head becomes larger and broader, generally of leaf-shaped outline, with the moulding of the socket, tapered with admirable precision, continuing along the centre of the blade to the point. In other cases, a rib starts from the socket near the base of the blade and divides the blade evenly in two halves. The weapons of the Bronze Age—daggers, rapiers, spears and swords—

must have been cast in great numbers; for although hundreds have been found in this district alone, we do not know of any two from the same mould.

The Layton Collection has some thirty-four spear-heads, all of which are probably from the Thames, and the British Museum has about the same number of specimens from the river within our boundaries, including some rare and extremely beautiful types. In several instances the upper part of the wooden shaft still remains in the socket, and this, when drawn out, is found to be carefully smoothed and tapered (see, for example, the end of a shaft from a fine looped spear-head, found at Putney, in the London Museum).

Visitors to the Layton Collection should note the variety of looped types of spear-head exhibited there, and in particular a remarkably good specimen from the Thames at Hammersmith Mall. One of the most important pieces in this collection is a wonderful spear-head, 16½ inches long, with hexagonal socket and midrib, having two large angular openings at the base of the blade. It is finely proportioned and of a pale golden colour, speckled with black. Unfortunately, there is no record of its finding; but another specimen, with lunate openings at the base of the blade and the point missing, is from the river at Teddington. Another broken specimen is in one respect probably unique: it has a small round hole close to the base of the blade, and on the opposite side of the blade, but higher up are two other holes joined by a slot.

Like the swords, the spear-heads from our district are almost exclusively river finds. Evans records an eyed specimen (found with a socketed knife) from Edmonton Marsh; and we may draw attention to a curious mass of bronze spear-heads fused together (possibly the relic of a foundry), discovered in Thames Street and now in the British Museum. In the London Museum there is a specimen of late type from Smithfield.

Bronze ferrules or butts for spear-shafts, with blunt or pointed ends, have been found at Staines, Kingston, Isleworth, Chelsea, and in the Thames near London.

Defensive arms are represented by two bronze bucklers from the Thames, in the British Museum. Both are about 21 inches in diameter ; the earlier type having four circles of studs or bosses, hammered out of the metal and separated by raised rings, while the other has eleven circles of embossed studs arranged in the same manner. In the centre of each is the umbo or boss, behind which the handle (still present in the first specimen) was secured by rivets. Both show traces of damage in warfare : the latter seems to have been pierced in one place by a spear-head with a sharp triangular section. A round bronze plate in the Layton Collection, 11 inches in diameter, with 17 raised concentric circles, may have been part of a buckler. The *Gentleman's Magazine* for 1865 (p. 770) mentions a bronze shield of the usual type, found in the Thames between Hampton and Walton in 1864 : it had twelve embossed circles with studs between them, and was 26 inches in diameter.

The smaller tools and implements of the Bronze Age include knives, both tanged and socketed, chisels with broad ends and sharp tangs for the handle, awls, drills, the so-called ' razors ', and small socketed hammers and gouges. Examples of these, which do not call for separate description here, may be seen in our principal collections : they are not of very frequent occurrence, but have been found in most parts of the Thames which have yielded relics of this period, and in hoards or depots. An exceptional object, possibly of later date than the Bronze Age, but provisionally assigned to that period, is a skilfully made fish-hook, found at Barnes and now in the London Museum.

Sickles of bronze are rare. There are six of these in the Layton Collection, two of which are socketed ; but, although probably from the Thames in our district, none can be ascribed to a known locality. Other specimens from the Thames may be seen in the British Museum, and there is an early type (from Syon Reach) in the London Museum.

There is in the British Museum a remarkably fine speci-

men of a bronze cauldron, dredged out of the river at Battersea. It is formed of two plates riveted to a concave bottom; the expanding rim was supported on four brackets with an open saltire ornament in each, and two hinged rings (one of which remains) were set opposite each other at the mouth. From each of the four brackets two strips of thin metal, decorated with foliated patterns, descended upon the shoulders of the cauldron. Its greatest diameter is 22 inches, and the height 16 inches. In the same collection there is another cauldron of even larger diameter (26 inches), but not so high, found in London: it is probably incomplete. Such cauldrons were perhaps used for boiling or stewing the food for a large family or community. They are rarely found in England, but in Scotland and Ireland are of more frequent occurrence. Undoubtedly these vessels belong to the end of the Bronze Age in Britain, and may have been made at a time when iron was already in general use on the Continent. They are, perhaps, copies of Greek or Etruscan originals.

Personal ornaments of the Bronze period have seldom been found in Middlesex or in the London area. A decorated bracelet from the Thames at London and a light bangle of uncertain period from Millbank Street are in the London Museum; and a fragment of an engraved hollow bracelet with open expanded ends, in the Layton Collection, is probably a river find, though it is certainly not a British type. The plain rings of different sizes which have been found in various parts of the river are not necessarily of Bronze Age date. Decorated pins have been found in the Thames and in London; and an interesting example, from the Thames at the mouth of the Wandle, is in the British Museum.

We have referred to the 'hoards' or depots of bronze-founders, and we are fortunate in the fact that several have been discovered within our boundaries. It should be explained that the term 'hoard' is used in a purely technical sense, and simply denotes a number of bronze implements, usually accompanied by moulds and fragments of metal, found together in one place.

In these hoards we have direct evidence of the methods employed in casting during the latter stages of the Bronze period. The molten copper was run into receptacles of bowl shape, and cakes of a plano-convex form were thus produced; these appear to have been cut up into smaller pieces before the metal had cooled. The amount of tin which was added for the actual casting varied from about 5 to 14 per cent, and in one case (from Southall) the unusually high percentage of 18 is recorded. Moulds of stone, loam and sand were probably used throughout the whole period, but bronze moulds came into use at an early date. The liquid bronze was poured into the mould through a perforated cup or a funnel. After the mould had been filled, a residue of molten metal remained in the funnel, or immediately below it; and these residues, known as jets or wasters, have conical or tab-shaped runners extending from them, which indicate the points at which the metal left the funnel or entered the mould.

One of the most interesting of our local hoards is the one found at Hounslow. It is especially remarkable as containing examples of the flat axe, the palstave and the socketed celt—types which, as we have seen, represent successive stages of invention. In the same hoard were gouges and spear-heads, 'part of a knife, fragments of swords, and a singular curved implement, made apparently by hammering down the edge of a broken sword or dagger.'[1] The hoard is now in the British Museum.

Another hoard, also in the British Museum, comes from Southall. In this are four palstaves (one looped) thickly covered by an encrustation of green oxidized metal; a stout ring, $3\frac{3}{4}$ inches in diameter and three-quarters of an inch thick, originally smooth and polished; and the two halves of a mould for a socketed celt, in which a celt of lead had been cast. Complete moulds of this type are not very common, and the present example, though slightly damaged by the workman who found it, is especially noteworthy. It has been suggested that leaden celts may have been used for making less precious moulds of clay

[1] *Proc. Soc. Antiq., II Ser.*, III, p. 90.

or loam. The metal of the looped palstave in the Southall hoard was analysed by Gowland, and found to contain the high percentage of tin (18·25) referred to above. The men who found the hoard had disposed of several cakes of copper before the interest of the discovery was realized.

A hoard from Kensington, in the British Museum, contains the singular example, already noted, of a socketed celt (or rather a portion of one) with a small bronze ring pushed through the loop and fitting tightly. The hoard consists of ten mixed pieces, including three complete socketed celts, a gouge, a sort of button, and a jet or waster.

In the London Museum are eight rod-like copper ingots and some pieces of metal from the site of a bronze foundry in the Kingsway ; and some lumps of copper found with a socketed celt in the river at Battersea, now in the Guildhall, may be taken as evidence of a hoard. Similar evidence is provided by a broken sword, part of a broken celt, and two damaged spear-heads, all found together at Staines and now in the London Museum.

The working of stone in the Bronze Age is characterized by the perfection of types which, in their earlier forms, date from the neolithic period. Chief among these are flint arrow-heads with barbs and tang, flint knife-daggers, and perforated axes and hammers of stone. Thin and highly polished flint or stone axes may also be ascribed without hesitation to the Bronze Age. All these types are represented by good specimens from our district, though the barbed and tanged arrow-head is comparatively rare. An exceedingly beautiful specimen of a highly polished axe in stone, found in the river at Mortlake, is exhibited in the London Museum.

Fine examples of the knife-dagger in flint have been found in the Thames, and one is recorded from Hornsey. These daggers, though not to be compared with the marvellous flint knives of Denmark, are perhaps the most admirable specimens of flint-work to be found in Britain. They would seem to date from the Beaker period, and are probably derived from a neolithic prototype, but may have

continued in use to much later times. The usual form will be understood from a glance at our illustration (Fig. 18). Some typical examples, from various parts of the Thames, are in the British Museum and the Layton Collection; but the finest local specimen known to us is in the hands of a private collector—it is of black flint, coated with a thick concretion of river mud, and has two notches on each side. Notches, single or double, may be seen on many specimens, and were obviously made for the purpose of binding the knife to its haft or handle. It is of course

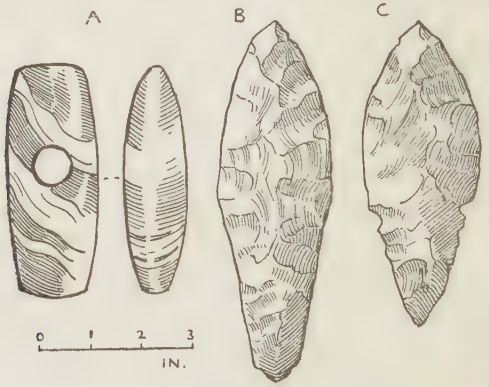


FIG. 18

A, Stone Hammer from Twickenham (*British Museum*); B, C, Flint Knife-daggers, Chiswick and Kew (*Layton Collection*)

open to question whether these implements were used as knives or daggers, or as lance-heads. Their local distribution is indicated by the labels of the British Museum specimens, which come from the Thames near London Bridge, near Chelsea Bridge, at Hammersmith, Battersea, Kingston, opposite Ham House, and at Sunbury.

The perforated hammer-head is best shown by the 'cushion' type: a polished implement of great beauty, with the true cylindrical boring which is generally considered a mark of Bronze Age workmanship. Two fine specimens, in polished serpentine and in silicified volcanic ash, both from the Thames, may be seen in the British

Museum and the Layton Collection respectively; and there is a handsome example in polished grey stone with parallel sides in the London Museum. We reproduce the British Museum specimen (Fig. 18), and it will be noted how the waved or banded markings of the stone give a particularly striking effect to the implement, which was found at Twickenham. In all three collections are various other good specimens of different types of the axe-hammer from the Thames. A stone hammer of 'pestle' type from the City, now in the British Museum, may be specially noted.

Bone and horn were extensively used for the manufacture of implements in the Bronze Age, but some hesitation may be reasonably felt when attempting to date isolated finds. A vast number of bone and horn objects, including complete implements and the hafts or handles for implements, have been found in the Thames; and although most of these are probably of Bronze Age date, some of them certainly belong to an earlier period (late neolithic) and some to a later (Early Iron Age), while others are Romano-British, Saxon, or Medieval. By far the commonest of these are perforated sections of deer-antler, sometimes cut off short for use as hammer-heads, sometimes obliquely sliced to make picks or hoes, and sometimes with openings plainly intended for the reception of a celt or some other implement. The 'hoes' may very well have served for agricultural purposes; some of them are worn smooth by repeated use, and their shape is well adapted for picking the soil. In the Layton Collection there are two unusual perforated horn implements from the Thames, made from the basal end of a deer-antler and described as hammers. One of these has a lattice pattern carved with great skill and patience upon the thicker end, and the other has the end cut into a number of plain facets. The first may be compared with a specimen from Twickenham in the British Museum; and the second with one in the London Museum, where there is also a most interesting 'imitation' in flint. It is possible that both specimens should be ascribed to the neolithic period, but there is room for doubt.

Doubt may also be felt in the ascription to the Bronze Age of a rare type of bone dagger, of which there are two specimens, presumably from the Thames, in the Layton Collection ; and a third, from the river at Twickenham, is in private hands. These interesting daggers appear to be made from the split metatarsal bone of a deer, and in form distinctly resemble hafted blades of the Bronze period. The specimens in the Layton Collection are about 6 and 6½ inches long ; the other, a finer specimen, is 8 inches long, and well shaped for the grip. It should be noted that a similar example, said to come from Cambridgeshire, is exhibited in the British Museum as a relic of the Early Iron Age.

A large perforated ox-bone in the British Museum, engraved with chevron patterns, comes from the Thames at Hammersmith. In the same collection, and in the London and Guildhall Museums, there are many examples of hammers, picks, and what not, made of horn and bone. There is a tendency to assign those which have neat cylindrical perforations to the Bronze Age, and those with rougher boring to the Neolithic : a simple test of this kind is not necessarily unsound ; but we doubt very much whether it should be applied with entire confidence.

For Further Reading : J. Evans, *Ancient Bronze Implements of the British Isles*, 1881—invaluable as a work of reference ; J. Abercromby, *Bronze Age Pottery*, 1912—a standard work, magnificently illustrated ; H. J. E. Peake, *The Bronze Age and the Celtic World*, 1922—for the advanced student ; O. Montelius, *Chronology of the British Bronze Age*, in *Archaeologia*, LXI (1909), p. 97 ff.—a most important and fully illustrated review of the subject ; W. Greenwell and W. Parker Brewis, *The Bronze Spear-head in Great Britain and Ireland*, in *Archaeologia*, LXI, (1909), p. 441 ff.—an authoritative summary, with an invaluable collection of illustrations, many of which show examples from the Thames ; *British Museum Bronze Age Guide*, 2nd ed., 1920 ; T. D. Kendrick, *The Axe Age*, 1925 ; H. J. E. Peake and H. T. Fleure, *The Way of the Sea*, 1929 ; F. G. Parsons, *The Earlier Inhabitants of London*, 1927.

CHAPTER VI

THE EARLY IRON AGE

THE use of iron had reached Central Europe by 900 B.C., and it is probable that the art of working in iron had passed by way of Egypt to the islands and countries of the Eastern Mediterranean at a much earlier date. The first Iron Age of Greece may have begun by 1200 B.C., and by 1000 B.C. the proto-Etruscans were certainly acquainted with the metal.

Two main stages of culture mark the Early Iron Age of Central and Western Europe. The first of these, the period of Hallstatt, is named after a cemetery in the Austrian Tyrol; and the second, or period of La Tène, after a pile station at the eastern end of the Lake of Neuchâtel in Switzerland. The Hallstatt period on the Continent dates from 900 to 500 B.C., and the period of La Tène from 500 B.C. to the beginning of the Christian era. Both phases of the Early Iron Age, but especially that of La Tène, are associated with the predominance of that great congeries of peoples who were united by the common use of a Celtic language.

In England, we have evidence of a Hallstatt incursion which probably took place about 600 B.C., though a somewhat earlier date is by no means out of the question. By about 450 B.C. the cultures of the early La Tène period began to enter this country, but we must not associate the introduction of these cultures with a wave of immigration on a large scale, and we are justified in assuming that they were brought here as the consequence of trade and peaceful intercourse. The fashions of the middle La Tène period were brought over from the Continent

some two centuries later—250 B.C. We have reasons for believing that the Belgae (a mixed race, Teutonic rather than Celtic) entered South-East Britain about 100 B.C., introducing wheel-made pottery with 'pedestal' bases, and a remarkably fine tradition in the art of decorative metal-work.

The divisions of the La Tène period in this country, as far as they can be fixed with approximate accuracy, are as follows:

I, 450 to 250 B.C.
II, 250 to 100 B.C.
III, 100 B.C. to 50 A.D.

The term 'La Tène IV' (proposed by Déchelette) is still employed in certain quarters to cover the final phase of the La Tène culture in Britain, but its retention serves no useful purpose, and is now likely to lead to misunderstanding.

By using the word Celtic we enter the field of doubt and of argument. It is a word best avoided, except when prudently employed in regard to periods or cultures or to a recognized group of languages. It cannot be applied to a racial concept of nationality, and still less to a constant physical type. We know but little concerning the early movements of the people described as Celts. It is possible that the Celtic language was first brought to this country by the Goidels in the later Bronze Age—the period of the leaf-shaped sword and the socketed axe—but philologists agree that there is no trace of the Goidelic language in South-East England. The later Celtic speech, that of the Brythons, may have accompanied the Hallstatt incursion. We have little evidence of Celtic occupation in the form of place-names, but we may cite the word Brent, which is early Brythonic. There are no periods more obscure than those which immediately precede the period of fully recorded history. The term 'Late Celtic' is certainly best avoided altogether.

The Hallstatt phase is very sparingly represented in this country, nor are there many objects belonging to the

early periods of La Tène. On the other hand, there are many beautiful relics of La Tène III, such as the famous Battersea shield, decorated scabbards from the Thames near London, and various enamels. Pottery, especially of the earlier phases, is rare.

The final stages of the Early Iron Age in Britain overlap, naturally, with the early stages of the Romano-British period, and this overlap is the cause of much uncertainty in the dating of such things as pottery and small iron objects of a primitive kind. A good deal of what is now considered Roman might equally well be assigned to the continuance of a native industry, or even to pre-Roman times. In the case of simple forms of pottery it is practically impossible to draw the line in every instance.

In our district, antiquities of the Early Iron Age come, with few exceptions, from the Thames. Their distribution may perhaps be partly accounted for by the former existence of dwelling sites on or near the banks of the river.

But here we must again draw attention to the difficulty of dating scattered objects, apart from those of known type, which are found in the beds of rivers, or which find their way, without previous record, into the hands of dealers and collectors. Even in cases where the object itself provides evidence of date, its archaeological value is greatly reduced, and may indeed be negligible, if we have no record of the place and circumstances of the find. A distinction cannot very well be made between certain objects belonging to the end of the La Tène period and those of the early Romano-British period. Concerning things typically La Tène or typically Romano-British there is, of course, no doubt ; but there are many small objects, and even complete pottery vessels, which cannot be hastily ascribed either to the one period or the other. These considerations have a special bearing on our district, where the native tradition and the native methods died hard.

It should be remembered that the people who represented the cultures of the late Hallstatt and the La Tène periods in this country were the first ' Britons ' of history,

and the first inhabitants of these islands definitely known to belong to the Celtic group. These people, however lacking they may have been in the finer and more sophisticated elements of civilization on which the Roman so much prided himself, produced a native art in embossed and enamelled metal-work, distinguished by the use of graceful lines and flowing curves, which is greatly superior to the grim and formal features of Roman decorative metal-work of the same period. The art of enamelling, indeed, was not known to the Romans until they had seen it practised by the 'barbarians' of the north. And we may note, that this art was continued and developed here long after it had been well nigh Romanized out of existence in Gaul. Although we are far from supposing that the production of decorative art implies a special degree of worthiness or intelligence, or is only possible in a really advanced society—a supposition disproved by facts in all periods—we would point out that it is not compatible with a state of mere savagery, and that it does imply a conscious appreciation of beauty and the desire to obtain it. The early Briton, however uncivilized in comparison with the Roman, was at least capable of making and executing a beautiful design, and had a good eye for the effect of colour and ornament.

The best known relic of the Early Iron Age in Britain is the Battersea shield—one of the finest examples of Celtic art in existence, and one of the principal treasures of the British Museum. We have here, not the complete shield, but the covering plates of a shield, the main thickness of which consisted probably of wood or leather. The covering, as we see it, is made out of four very thin plates of bronze, hammered out with no ordinary skill, and three decorated plates secured by rivets. Eighteen of the rivets are still in position, and only six are missing. The edge of the shield was bound by strips of bronze, the joins of which were originally protected or concealed by little decorated plates, only one of which remains. Although the front of the bronze is now dull and tarnished, the back is still of a bright golden colour, and we can imagine

THE BATTERSEA SHIELD
(2 FT. 6½ IN. LONG) *British Museum*

how brilliant the effect must have been when the front was clean and polished.

The splendid curves of the decoration, firmly and cleverly embossed in high relief, are clearly shown by our photograph (Pl. V). Twenty-seven studs or bosses of what was originally a bright red enamel, made of oxide of lead coloured by suboxide of copper, fused on clay buttons, added richness to the design. These studs are held in position by delicate circular open-work frames, enclosing a swastica pattern, attached to the plate by a slender pin. The workmanship of these little frames may be properly described as exquisite. Both frames and enamel have now a tendency to drop off the shield (two complete studs have fallen out), the original colour is faint and dingy, while the surface of the enamel is badly chipped and cracked, and in some cases little but the clay core remains. At the time of its manufacture, the contrast between the brilliant red enamel and the burnished golden surface of the bronze must have been exceedingly fine. An open-work bronze plate, found with the shield in 1857, was probably intended for the decoration of the handle. The length of the shield is 2 feet $6\frac{1}{2}$ inches, and its greatest width is $14\frac{1}{4}$ inches.

It is certainly strange that such care and such delicate treatment should have been expended on a defensive arm, meant for the rough usage of war. But the shield has never been damaged in battle, and it may be suggested that it was used only in parade or ceremony. There need be no hesitation in ascribing it to the phase of La Tène III.

Another extremely fine specimen of late La Tène decoration is a circular bronze shield-centre from the Thames near Wandsworth, also in the British Museum. This has a central projecting boss with an engraved pattern and a hollow depression in which some ornament, possibly of enamel, seems to have been set. A graceful *repoussé* design, with engraved detail, flows between the boss and the rim of the plate. In the flat part of the plate are four rivet holes, one still containing the rivet, which may have been provided for the attachment of the handle,

while small holes drilled at the extreme edge took the pins or rivets which secured the plate to the rest of the shield. The diameter of the plate is 13 inches. It was found in 1849.

From the same place, found at the same time, and now in the same collection, is the broken fragment of the central decoration of a long shield in bronze. This apparently represents an earlier tradition, and consists of a central boss with portions of ribs or extensions which led to circular ornamental plates at each end of the shield. The central ornament is embossed in high relief, and the beating out of the metal has thinned it to such an extent that the more salient parts have cracked open. The effect of the curving design on the boss is heightened by the waving of the central ridge and by spiral engravings on the terminals of the pattern. One extension terminates in a double embossed ornament which, according to Kemble, ' presents a rude outline of an animal's head '— but we may doubt whether such an effect was intended. The fragment is now mounted on a wooden board, cut to the assumed shape of the shield, on which are shown in white outline the probable form and position of the missing parts. Eight of the attaching rivets are preserved, and these are intentionally pushed out from their holes, so as to show the rounded head and thin shank. The shield for which this mounting was designed must have been larger than the Battersea specimen, and Mr. Reginald Smith estimates its length at 33 or 34 inches.

The first swords of the Early Iron Age were made of bronze, and in form closely resemble a slender type of the leaf-shaped weapon of the late Bronze Age. Swords of the Hallstatt period in bronze are extremely rare in this country, though it is possible that certain museum specimens which are at present classified as Bronze Age might be moved on to the Hallstatt category. In the British Museum there is a fine specimen of the Hallstatt bronze sword, found in the Thames at Battersea : it is of typical slender form, in golden bronze covered with a black stain, skilfully cast, with bevelled edges and slightly bi-convex

section. The hilt-plate and upper part of the blade of a similar sword, also from the Thames, is in the London Museum.

Associated with swords of this type is a scabbard-end or 'chape' of peculiar form, made of bronze, with wide curving wings or projections. Sir John Evans considered that these unaccountable wings might be a proof of 'prehistoric dandyism', and it is not easy to suggest a practical use for them. The ingenious but unconvincing theory that the foot was placed on them, to steady the scabbard when the sword was drawn, should, however, be mentioned. In the British Museum there is a typical specimen of one of these chapes, in form somewhat resembling an inverted cocked-hat (transitional between forms with up-curving and down-curving ends), which was found in the Thames; and another, of less exaggerated outline, from the river at Wandsworth. Another, with upturned ends, found at Syon Reach, is in the London Museum. We may note that the chape first mentioned is reproduced in the *Early Iron Age Guide* of the British Museum (Second Edition, p. 33), and also in the *Bronze Age Guide* (Second Edition, p. 88), and that chapes of this type, and the corresponding swords, are by some authorities regarded as belonging to the last phase of the Bronze Age in Britain, rather than to the opening of the Hallstatt period.[1]

The long and heavy iron sword which succeeded the bronze weapon has not been found in our district, but the short sword, with *antennae* at the end of the grip (dating from the end of the Hallstatt period), is represented by a remarkably interesting, but not complete, specimen from the Thames in the British Museum. This is probably the earliest iron weapon found in the river.

Swords and scabbards of the La Tène period, though of rare occurrence in Britain, are illustrated by good examples from the Thames. Most of these probably belong to the final phase of La Tène, a phase which may be taken as extending in this country from the beginning of the first century B.C. to about A.D. 50, or a little later;

[1] See Evans, *Bronze*, p. 307.

but some are doubtless of earlier date, and can be ascribed to La Tène II (250–100 B.C.).

The blades of late La Tène swords are long and narrow with sharp edges, better designed for cutting than for thrusting, sometimes with slight metal guards, but with a grip of wood or horn fastened to the iron tang. These blades are extremely malleable ; and they have been found (in burials) rolled or bent over like strips or ribbons of soft lead. The sword was housed in a scabbard of bronze or iron with a loop near the mouth for attachment to the belt or girdle.

A bronze scabbard of unusual length, with the sword rusted inside it (found in the Thames near London), is in the British Museum (Fig. 19). It has nearly parallel sides, and is made of two bronze plates joined by metal edgings. The mouth of the scabbard is shaped to fit the ' ogee ' curve of the guard ; and this curve should be specially noted as a characteristic feature of swords and daggers dating from La Tène II to the end of the period. The shape of the terminal is also characteristic. In view of its length—about 39 inches from pommel to point—the sword must have been a very awkward weapon, more likely to get in its owner's way, or to bend or break, than to be a reliable arm.

The British Museum has another fine decorated bronze scabbard from the Thames at Battersea, with straight mouth and no chape ; a sword with the remains of a scabbard, from London ; and a set of eight iron swords from the river, four of which have portions of their rusted iron sheaths adhering to them. An interesting La Tène sword from the river at Battersea, exhibited in the London Museum, has the point more finely tapered than is usual on models of this period, and one face of the blade covered with minute dots. In the same collection are fragments of four iron swords from the Thames at Hammersmith. In the Guildhall Museum there is a sword from Fenchurch Street, found in 1872, which is presumably of the La Tène period.

A weapon which seems to have been extensively used

by the Celts of the Thames valley, and which was clearly a valuable possession, was the short iron dagger. This was a most effective weapon for stabbing, with a tapering and pointed blade, averaging from 8 to 9 inches in length. That it was highly prized and was carried by persons who were able to employ the best craftsmen is shown by

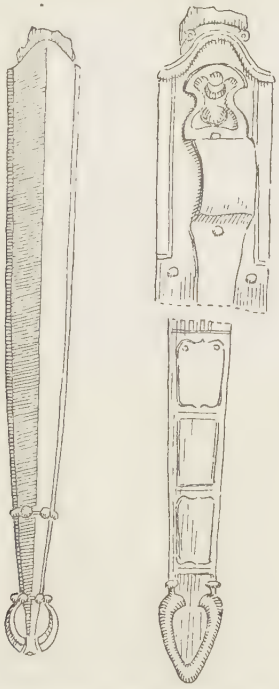


FIG. 19.—BRONZE SCABBARDS OF DAGGER AND SWORD FROM THE THAMES
Drawn to different Scales. *British Museum*

the beautiful decoration and delicate work which is often found on the scabbards. It is by no means improbable that some of these daggers may have been carried and used by women. The dagger or poignard, so well designed for swift and stealthy killing, so easily carried or concealed, so quick and deadly in a hand-to-hand tussle, and requiring

such little force, is a weapon having almost equal advantages for both sexes, and in some ways peculiarly well adapted for feminine use and methods. The pretty and elaborate decoration of the sheaths provides an additional reason for supposing that they were intended for women.

Many specimens of daggers and sheaths have been found in the Thames within our boundaries. These date from La Tène II to the Romano-British period—for we cannot include the dagger with 'anthropoid' hilt found in Stoney Street, Southwark, and certainly dating from La Tène I.

The sheaths of the earlier periods are distinguished by chapes or terminals of lunate or open circular forms, and by the ogee or rounded curve of the opening. According to Sir Hercules Read and Mr. Reginald Smith, it is probable that the earliest form of the chape is the fish-tail (note an example from Battersea in the British Museum), developing into the half-moon type, with points not touching the edges of the sheath. Later, the points of the crescent join the sheath and the chape is thus a broken circle; and finally it becomes solid and of a more elongated outline.[1] The terminal ring of the earlier chape is almost round in section as well as in form.

Certainly the most remarkable dagger-sheath found in our district is represented by an extraordinarily delicate fragment from the river at Hammersmith, now in the London Museum. This consists of the greater part of one side of a bronze sheath with an ogee mouth. It is decorated with an open-work pattern of small conjoined figures of eight, while a strengthening band below the mouth has four small cups which were probably set with pieces of coral. The filigree pattern would be a proof of skill in any period, and shows that the 'barbarians' of La Tène II were capable of daintiness and precision in metal-work of an extremely fragile kind. Part of the dagger found with the sheath proves that the weapon, too, was of more than usually good quality, for it had three strengthening ribs running from the hilt end of the blade towards the point.

[1] *Proc. Soc. Antiq.*, XXV, p. 58.

We may also note, in the London Museum, a fine bronze dagger-sheath with typical half-moon chape, from Hammersmith ; and a very graceful long and tapering specimen from the site of the County Hall at Westminster.

There is an interesting series of daggers and scabbards in the British Museum. Mention should be made of the specimen from the Thames at Wandsworth chosen for our illustration (Fig. 19), which has a double loop at the back for the fastening ; a sheath (with the blade rusted inside, as in most cases) having a ring chape and engraved pattern, from the river near the Surrey shore below Hammersmith Bridge ; another from the Thames at High Bridge, Barn Elms ; a fine specimen from Richmond, with an open-work pearled chape of oval outline enclosing a pearled cross, and containing a blade with slightly out-curving edges ; a handsome decorated sheath from Wandsworth ; a slender specimen with open crescent end from Chelsea ; and a broad dagger from Battersea.

Two very fine examples from the Thames are shown in the Layton Collection at Brentford. Here the iron daggers are contained in wooden scabbards which are covered with thin narrow transverse plates or strips of bronze. One of the daggers has a cross-bar pommel (broken) and a carefully modelled core for the grip, while at the top end of the blade, on both faces, are four small circular depressions which, we think, originally contained coral or enamel. The scabbard of this dagger is bound or decorated with ribbon-like strips of bronze, alternately dark and golden, with finely beaded lines at top and bottom. The other dagger (from gravel at Mortlake) is broken off above the guard : it has a sheath which is bound, like the first, with bronze bands having beaded or pearled borders, and the second band from the top is decorated with a line of pearled chevrons. At the back there is a row of chevrons along each side. Both specimens are clearly of late La Tène date, and may be compared with another (from the Thames) in the British Museum.[1]

The list of daggers and sheaths which we have given,

[1] *Arch. Journ.*, XXXIV, p. 301 ; *Arch.*, LXIX, p. 19 and Pl. II.

though it includes the best and most interesting specimens, is not by any means complete. There are many other examples from the Thames, both in private and in public collections, and these weapons must be reckoned among the less uncommon, but not less remarkable, relics of the Early Iron Age in our district.

Spear-heads of this period are naturally more often found than swords or daggers. They are not always easy to identify, but are invariably of iron, usually with closed sockets and with holes for pins or rivets at the base. But in some cases the socket is open or split ; and there is thus some excuse for uncertainty in distinguishing between spear-heads of pre-Roman and of Roman or even Saxon date.

In the British and London Museums may be seen La Tène spear-heads from the City, Moorgate Street, the site of the County Hall, Mortlake, Wandsworth, Hammersmith, Barn Elms, Battersea, Teddington, Syon Reach, Putney and Brentford. These show many varieties of shape, from the broad leaf-shaped blade to the long tapering head ; some are angular and others rounded at the base. We may select for special mention three in the British Museum : one from Mortlake with exceptionally wide leaf-shaped blade ; one from Battersea with chevron mouldings at the base of the blade ; and one from Moorgate Street with unusually long socket. Among others in the Layton Collection at Brentford, one from Syon Reach with a part of its wooden shaft deserves a note.

The author has been shown an iron spear-head which, associated with a typical bone point, is said to have been found in 1910 during excavations for the dynamo house at Bell's asbestos works at Harefield, resting upon ballast at the foot of the chalk escarpment which there forms the eastern side of the Colne valley. Although the spear-head is much rusted, and might in itself be regarded as of uncertain age, the bone point (which has a hole at the base for pinning to a haft) can be exactly matched by others from an Early Iron Age burial at Grimthorpe in the East Riding of Yorkshire, and the finds can thus be dated with some measure of confidence.

Other finds, made near the same place, have been stupidly destroyed.

Butts or counterpoises for spear-shafts are comparatively rare. There is one from Fetter Lane in the Guildhall, made of bronze, with a spherical end very much resembling the rubber button at the end of a salmon rod.

The well-known horned helmet from the Thames at Waterloo Bridge may now be described, though it is not necessarily a piece of military equipment, and may have been used for purposes of ceremonial (Fig. 20). This helmet,

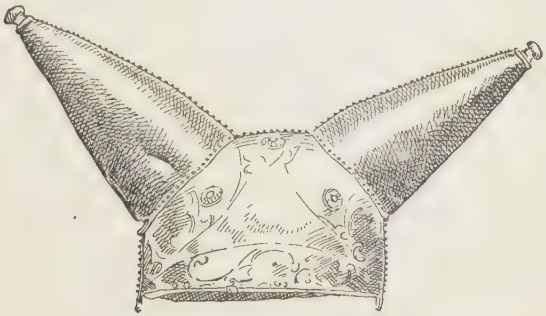


FIG. 20.—HORNED HELMET FROM THE THAMES AT WATERLOO BRIDGE
British Museum

decorated in front with three enamel studs and a slight but graceful *repoussé* pattern, is made of thin bronze plates riveted together, and, according to Déchelette, is 'still in the ancient technique of the Bronze Age, then abandoned on the Continent'.[1] The two wide hollow horns which give this helmet its peculiar character are of a kind which the popular imagination would readily associate with Vikings and sea-rovers; but the metal-work, enamel and design all place it definitely in the La Tène period, and it was probably made at the beginning of the Christian era. The decorated strips of metal which cover the joins of the plates are secured by small pins or rivets

[1] *Manuel*, II, 3, p. 1160.

set close together and thus producing a beaded effect. Most of the red enamel has disappeared, and we can see how the metal discs were prepared to receive it by being scored or roughened. Although slight, the scroll pattern is certainly not ineffective, and is well considered in regard to space, material and purpose. The helmet is now somewhat dull and tarnished in colour; it must originally have been highly polished, and would then have had that bright golden appearance which was evidently prized by the Celts. And here again, as with the Battersea shield, the colour and brilliance of the metal were admirably set off by the red studs. The extreme thinness of the bronze plates of which the helmet is made would not have afforded the slightest protection in warfare. Even if we suppose that a leather lining was provided, it would still have been totally inadequate for the shocks of battle, and so small that it could scarcely have been placed over the head of a child. As it is, the helmet is barely large enough to fit the head of the average modern man. We are probably right in supposing that it was intended for ceremonial wear. And we may observe that it seems better adapted, on account of its weight and size, for the head of a child or a woman than for the head of a man.

The socketed axe-head or celt, one of the commonest relics of the Bronze Age, continued in use during the Early Iron Age, but in larger, ruder and severely practical forms. Iron celts are rare. There are three specimens—two from the river at Mortlake and one from Kew—in the London Museum, and there is a curious massive axe-head, approximating to the socketed form, and presumably from the Thames at Brentford, in the Layton Collection. In the British Museum there is an example from the Thames opposite the Tate Gallery. Mr. H. R. Rainbow found a good specimen in the Thames at Syon Reach.[1]

'Currency bars' of iron, which, whatever their precise use, evidently represent a method of stabilizing values, are not as frequent here as in some other parts of the country, but there are three specimens from the Thames

[1] *Proc. P.S.E.A.*, V, p. 254; *Arch. Journ.*, LXXXV, p. 170.

(at London and Hammersmith) in the London Museum. These are long, flat rusty bars of metal, with one end pinched in to form a kind of tab or open socket. They were of standard weights (ranging, apparently, from $2\frac{3}{4}$ to 44 ounces) and were probably used in a system of exchange : evidence of this use is definitely indicated by a passage in Caesar.[1]

Concerning many small miscellaneous objects of iron, and many plain tools, there must always be considerable uncertainty. Obviously it is not possible to date any piece of rusty iron at a glance, and even when the forms are well preserved there will often be a doubt as to whether objects belong to the Early Iron Age, to the Romano-British period, to Saxon times, or even to later ages. We cannot pretend to decide whether all the iron objects in the remarkable collection in the Public Library at Brentford (Layton Collection), most of which have presumably come from the Thames, are rightly attributed to the Early Iron Age, but many of them unmistakably belong to that period. Among these we may include an iron sickle, with open socket, found near Syon House ; and an iron key of primitive pattern (merely a bent rod) from Strand-on-the-Green, opposite Kew. We should be less confident in dating two bill-hooks found off Syon House, a pair of shears from Old England (Brentford), and iron knives from various parts of the river. A knife in a horn handle from Old England is very probably of La Tène date, and may be compared with one from the Thames at Kingston in the London Museum. In the Guildhall Museum there are three primitive keys of the type described above, presumably found in London. We may note, among miscellanea of this kind, a curved iron ' chopper ' from the Thames at Wandsworth in the London Museum.

At least two of those rare and problematical objects known as ' axle-ends ' have been found in our district—one in the British Museum from the Thames at Putney, and one in the Layton Collection, also (presumably) from the river. These consist of hub-like bronze castings with

[1] *De Bello Gallico*, V, 12, 4.

cupped or sunk ends usually containing decorative embossed plates or studs. Incomparably the finer of the two is the one in the Layton Collection, which has an embossed plate of elaborate scroll-work set in the closed end of the ' hub '. The scroll-work was set off by an inlay of red enamel (*champlevé*), traces of which remain ; and although small, measuring about $1\frac{3}{4}$ inches in diameter, the plate is a relatively important specimen of Celtic decoration, and has not received the attention which it deserves. The centre of the closed end of the Putney specimen has a small embossed convex plate, through which a pin passes into the centre of the hub. We cannot suppose that such slender castings were made for use on war chariots, or vehicles of any ordinary kind, for they would have been unequal to the wear and weight to which such use would have subjected them.

What is sometimes described as a bucket and sometimes (though with little reason) as a tankard is one of the most important objects in the Layton Collection. It is a small bucket lined with neatly cut oaken staves, fastened to each other in a most ingenious manner by means of little diamond-shaped pieces of hard wood, and cased in bronze. The ends of the upper and lower enclosing bands are riveted together, their joints and edges being covered by thin strips of metal ; the central band is secured by a small bronze handle, attached by means of solder. The handle consists of two looped rods of bronze welded together, and there may have been another handle on the other side. The bucket is about 6 inches high, with a diameter of 7 inches at the base and $6\frac{3}{4}$ inches at the brim. Slightly curved, the bottom plate (of bronze) rises about half an inch towards the centre. It is said that the bucket when found (in the Thames, probably at or near Brentford) was in perfect condition. Sir Hercules Read saw it in Mr. Layton's house in 1890 ; but when Mr. Layton's collection was taken in hand by his executors, after his death in 1911, it was discovered beneath a pile of lumber, and had suffered greatly from ill-treatment and neglect. Some of the staves are now missing, and the others are warped and damaged.

This unfortunate history conveys a moral and a warning which are sufficiently obvious.

Mr. Layton's failure to label his specimens or to record their finding, and his extraordinary neglect of the objects which he was so zealous to obtain, prevent us from including here many things which presumably came from the river in the neighbourhood of Kew and Brentford, but which may possibly have come from other places, not necessarily within our own district. We are informed that the dredgermen and others who brought antiquities to Mr. Layton were in the habit of telling him that they were found near Brentford, believing that he would thus be more readily disposed to buy them; while, in reality, they frequently came from other, and sometimes from distant, places. Nor can we altogether eliminate the suspicion of forgery. It is in this way that purveyors and collectors, between them, destroy or neglect evidence. Fortunately, we are able to match many of the specimens with those in other collections, where the necessary data are available.

This observation applies to a bowl of thin hammered sheet-bronze in the Brentford Collection, of the type associated with the 'water-clock' theory, and which we can compare with one in the British Museum from Battersea. The 'water-clock' idea is, that a vessel of carefully standardized capacity has a tiny hole in the bottom through which water poured into the vessel is slowly drained, thus measuring the lapse of a certain period of time. As an alternative, the bowl may be placed in water and allowed to sink. Sometimes the hole is plugged with a rivet or washer, so that it may have been used for ordinary purposes as well. But we must remind ourselves that such plausible theories, however ingenious and attractive they may be, and however likely to be correct, are not, and cannot be, supported by the production of real proof.

Other bowls and basins of bronze (not 'water-clocks'), probably of La Tène date, may be seen in the British, Guildhall and London Museums. They have been found in King William Street, Farringdon Street and Cheapside,

and in the river at London, Battersea, Hammersmith, Mortlake and Syon Reach. We may note a bronze pan or skillet from Creed Lane, and a graceful bronze bowl with two lines of small bosses on the flat brim, from the Thames, both in the British Museum.

We do not intend to present the reader with a complete inventory of La Tène objects from our district, and we must pass by such miscellanea as the open-work bronze discs found in the Thames at Hammersmith, the remains of a large open-work bronze ornament of conjoined circles from Barn Elms, the fragment of an embossed bronze plate from Tower Street, and various odds and ends of metal in the British Museum and in other collections. But we must draw attention to a few exceptional and interesting pieces.

Of these, two of the most remarkable are the so-called bronze 'spoons' in the British Museum—one from Brickhill Lane, Upper Thames Street, and the other from the Thames at London. These objects, the use of which is unknown, are shallow, broad spoons with pointed ends and short flat extensions or 'handles'. They are generally found in pairs; one with a cross engraved in the bowl, and the other with a small circular hole drilled near one edge (always the same edge—on the left, looking at the spoon with bowl uppermost and 'handle' downward). The upper end or handle is generally engraved or embossed with characteristic La Tène patterns. They are extremely rare: nineteen or twenty examples have been found in the British Isles, and a solitary pair has been recorded in France. Both of the examples mentioned are of a dull golden metal, considerably stained. In the Brickhill Lane specimen the perforation has been made too close to the edge, which is broken; the other has a complete perforation. The former was found in 1822 and was bought by Mr. Albert Way in 1869: the surface, it was observed, was 'coated with a kind of granulated encrustation, wholly unlike the fine lustrous patina that is seen on antique bronzes'.[1]

[1] *Arch. Journ.*, XXVI, p. 54.

The Brickhill Lane spoon can be matched by a pair found at Llanfair, Denbigh, and another at Weston near Bath; and the other by a pair from Penbryn, Cardigan.

Numerous fantastic theories have been put forward to account for these spoons, none of which are convincing. According to one such theory, they were used in sacramental rites; and according to another, as castanets. The reader can doubtless amuse himself by thinking of others, not more improbable, and not less worthy of serious presentation. We are inclined to believe that these mysterious objects were connected with ritual of some kind, and perhaps with a cult peculiar to the Gallo-British peoples of the first century before Christ.

In the Guildhall Museum there is a curious spoon-like object of bronze from Holborn Viaduct: the handle is riveted to the back of the bowl and terminates in two spiral coils.

Horse and chariot equipment of metal are only represented locally by a few pieces. There is a fine bronze bridle-bit from London in the British Museum, with traces of enamel; in the London Museum there is a fragment of a rein-guide or terret from Moorgate Street; and what may be part of another terret is in the Guildhall Collection. An enamelled bronze plate from London, with decorative outline, open-work centre, and red and yellow colour, considered Roman by Roach Smith, is certainly of Celtic workmanship and may have been part of a horse-trapping: it is in the British Museum.

The ancient Celt (like his modern representative) had a marked partiality for mascots, badges and amulets, and for trinkets of a symbolic kind. For these he frequently made use of animal forms, and particularly of the pig; an animal regarded with religious veneration, and in Wales represented by a divinity named Mocchus.

This may help to explain the curious find made in 1864 by men digging in a field at Hounslow. In one part of the field they found the bronze hoard described in the preceding chapter, and in another part they came on a

little collection of animal figures in bronze, together with a small bronze wheel. The date of the animals—three boars and two of indeterminate species—was recognized by Sir Wollaston Franks at the time of the discovery: he pointed out the resemblance between the boars and those on early British and Gaulish coins, and considered them, rightly, as 'Celtic, but not probably much anterior to the Roman dominion'.[1] It will be seen from our illustration (Fig. 21) that one of the boars has a perforated flange on the back, and that one of the other animals has a ring

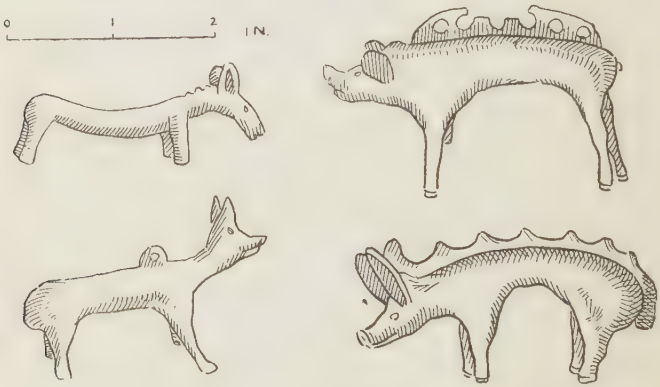


FIG. 21.—BRONZE FIGURES OF ANIMALS FROM HOUNSLOW
British Museum

for suspension. The third boar, which is smaller than those illustrated, has the remains of a flat base attached to the fore-feet, and the others were evidently meant to be set or mounted in the same way. Whether these curious little figures were amulets or badges we cannot say; but we may draw attention to a very interesting parallel from the Early Iron Age settlement or *oppidum* of Jœuvres (Loire)—a boar with two holes in the flange on the back.[2] This parallel enables us to assign the figures to the period of La Tène III. The bronze wheel

[1] *Proc. Soc. Antiq., II Ser.*, III, p. 90.
[2] J. Déchelette, *Manuel*, II, 3, p. 1307.

found with the animals is barely an inch in diameter and has four slender spokes : it may represent a unit of currency, or it may be a ritualistic object, or simply a plaything. The figures and the wheel are now in the British Museum, where also is a much corroded little bronze boar found by Roach Smith in London.

In the London Museum there is a small bronze model of the head and fore-part of a boar, found in Eastcheap, which may be compared with the above, and is possibly of the same period.

Of objects meant for personal wear or decoration, the most numerous in this period are the *fibulae* or safety-pins. Fibulae of early La Tène pattern have been found in the Thames at London, at London Wall, at Hammersmith, and at Brentford Ferry. Types belonging to La Tène II have been found at the Royal Exchange and at London Wall ; and those of La Tène III are represented by specimens from Carpenter's Hall, Fenchurch Street, Barge Yard, the Thames at Hammersmith, Barnes, and elsewhere. We would note, in particular, a bronze fibula in the shape of a sea-horse, with traces of enamel, found at Tokenhouse Yard and now in the Guildhall Collection ; and a curious ' involuted ' type of the middle La Tène period, peculiar to Britain—the pin rotating on a ring and the back curved downward or ' broken '—found on the new Midland Bank site in 1928, and now in the London Museum. It should be noted that large numbers of fibulae which were once described as ' Late Celtic ' are now correctly classed as Roman.

Plain pins with looped or curved ends are represented by specimens from Hammersmith in the London and British Museums, and in the latter collection is an eccentric specimen from Hammersmith, decorated with coral.

A gold bangle of La Tène date in the London Museum is labelled ' North London ', and in the same collection are two prettily decorated gold ear-rings from a London site which is not recorded. Here, also, will be found a slender decorated bronze bangle with buffer ends from

Hammersmith, and a heavy bronze armlet with plain decoration and overlapping ends 'probably from Isleworth'.

In dealing with the pottery of the Early Iron Age from our district we are faced by many difficulties. We have few specimens which can be dated with confidence; and it seems probable that the rare examples of wheel-made pottery from the London area belong to the Romano-British period. We shall have occasion to refer to these later.

With one exception, the pots which we have to describe can be regarded as domestic wares, of simple form, made by hand and with little concern for symmetry or mere elegance. In colour they are dull grey or greyish-brown, the paste is usually gritty, the brims are but slightly moulded, and there is seldom any trace of decoration, or any feature which is not purely functional. All the specimens come from the Thames.

The exceptional piece to which we refer is a black two-handled cup in the British Museum. This was found in gravel on the shore opposite the Crab Tree at Barn Elms, 'having luckily caught the eye of two passing dredgermen as it lay with the base exposed in a channel made by the grounding of a pleasure-boat'.[1] The form of the cup, with its two large ear-like handles and the two pointed projections between them, marks it clearly as having been made during the Hallstatt period in Thrace, Macedonia, or Asia Minor, possibly at Troy (Hissarlik). It is made of a fine paste, speckled with mica, and is slightly burnished. There is no doubt that it was imported to this country, but the question is—when? The cup is in perfect condition, and we cannot believe that such a fragile piece could have been rolled about, undamaged, in Thames gravel for a period of considerably more than two thousand years. If it was brought to this country in the ninth century B.C. (that is, soon after the date at which it appears to have been made), 'it lends colour to the theory that the Phrygians traded with Britain before the Phoenicians

[1] *Proc. Soc. Antiq.*, XXV, p. 84.

took command of the sea '.[1] Whatever its history, it must be a strange one.

We illustrate a bowl from the Thames at Mortlake (Fig. 22, D) which may be of Hallstatt date. It has a circular 'kick' or depression in the base which is typical of Hallstatt wares in general, and is of a dull grey colour. The more elaborate form (Fig. 22, A) which comes from the river

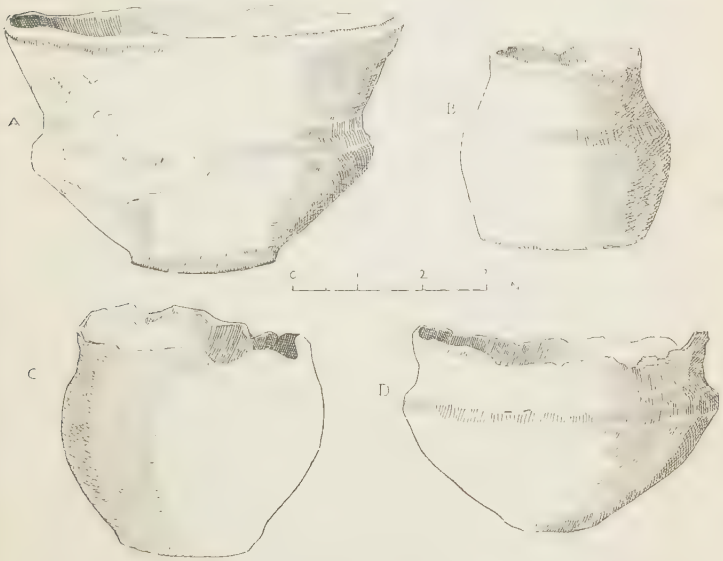


FIG. 22.—POTTERY OF LA TÈNE PERIOD FROM THE THAMES
A, Wandsworth; B, Thames; C, Twickenham; D, Mortlake

at Wandsworth is probably of Middle La Tène date; it is made of a rather gritty paste, is dark grey, and has a well-moulded circular base. The small pot (Fig. 22, B) is one of two from the Thames near London which are said to have contained bones when they were found—if that is so, the bones must have been very small or fragmentary or reduced to ashes. These three vessels are in the British Museum. Our other example, from the river at or near

[1] *Brit. Mus. Iron Age Guide*, p. 90.

Twickenham, has a flat base and is made of coarse, gritty paste.

In the Layton Collection there are two small pots and a cup, obviously of La Tène date, from the Thames at Hammersmith ; and other pottery vessels from the river at Strand-on-the-Green, Putney Bridge, Strand Island, Old England and Mortlake, with several not marked with locality, can be assigned to this period, though not so labelled in the collection. Specimens of greater interest are in the London Museum, where we may note the fragment of a broad shallow bowl from Wandsworth, a pot in black ware with bulging sides and a base approximating to the pedestal form (from Hammersmith), and small but well-shaped pots from Barnes and Kingston.

Sherds of pottery from the Thames at Old England, Brentford, have been assigned by Dr. R. E. M. Wheeler to the Hallstatt period : they are generally of a dull brown colour and are ' flecked with fragments of white calcite '.[1] Further intelligent research will probably add to our knowledge of a period in British prehistory which is at present rather obscure, and valuable evidence is to be expected from the lower Thames valley.

There must be a certain hesitation in ascribing objects of bone and horn to the Early Iron Age, unless they are found associated with other things which clearly prove their date. London excavations and Thames dredging have brought to light innumerable worked pieces of bone and horn, but the period of most of these is doubtful. The perforated and polished tine-ends of deer-antlers, described as the cheek-pieces of bridles, probably date from the early La Tène period : they have been found in the Thames at Hammersmith, Brentford, Syon Reach, and elsewhere. A small bone plate with ring-and-dot pattern, from the Thames near Hammersmith Bridge, exhibited in the British Museum, is ascribed to this period ; and so is a small bone chisel from the Thames at Westminster. In the same collection is a bone weaver's comb (used for packing the weft threads in the loom) from the

[1] *Antiquity*, III, No. 9, p. 20.

river at Mortlake ; while the London Museum has three similar combs—two of horn from Wandsworth, and one of bone from Moorgate Street.

Early British coinage is locally represented by several interesting finds. Few of these coins are inscribed, and the bronze coins of Tasciovanus and Cunobelinus (Cymbeline) found at Barnes and shown in the London Museum are therefore of special interest. Tasciovanus, who reigned over the Catuvellauni in the eastern midlands, north of the Thames, from about 30 B.C. to A.D. 5, was the son of Cassivellaunus, the chieftain against whom the expeditions of Julius Caesar were directed. His coins were minted at Verulamium (St. Albans), but those of his son and successor, Cunobelinus, were issued from Colchester. The London Museum has also a British copy of a Roman quadrans, having on the reverse a bull with three dots above, from the Thames at Wandsworth ; a small silver coin from the supposed site of a pile-dwelling at Hammersmith ; a silver piece of East Anglian type, with a head on the obverse and a horse on the reverse, from Leadenhall Street ; and six tin coins from Hammersmith.

These tin coins, many examples of which have been found in various parts of our district, are pieces of extreme crudity, bearing devices which are just recognizable as human heads in profile and 'grotesque quadrupeds'. They are round (but by no means exactly circular) and flat, with the pattern in raised lines, produced by casting, and are about three-quarters of an inch in diameter. In colour they are of a dull leaden grey. Nine of these coins, found together on Eel Pie Island, Twickenham, are in the Layton Collection. In the Sadler Collection at Gunnersbury House, Acton, there is a fine set of thirteen, said to have been found together in Gunnersbury Lane, and closely resembling the Twickenham series. Others have been found in the river at Brentford, Barn Elms, and Richmond, and it is stated that some were unearthed in St. James's Park early in the nineteenth century. There seems little doubt that many have been found from time to time at Brentford, and distributed among collectors.

We may assign these tin pieces to that phase of the Early Iron Age which overlaps with the Romano-British period —that is, to the later part of the first century A.D.

Of earlier date and of much greater rarity are two interesting uninscribed gold coins in the Layton Collection (not exhibited). These are small thick pieces of irregular but roughly circular outline, with one face slightly concave and the other slightly convex. Both are of the same type, with debased versions of the head (on the obverse) and the chariot with horses and charioteer (on the reverse) found on staters of Philip of Macedon ; but one is a more skilful imitation than the other. There is no detailed account of their finding, but one is said to have been discovered in a brickfield near Kew Bridge, probably on the Middlesex bank.

Uninscribed gold coins of the stater type have been found in Enfield Chase, at St. John's Wood, Harlington, and New Southgate, and one inscribed TASCIO in Victoria Park. A gold coin, presumably found in London, is described in Roach Smith's *Catalogue of London Antiquities* (p. 99) as being of the convex-concave type, with ' a horse curveting ' on the one side, and ' a tree or palm branch ' with four circles on the other. Roach Smith had also a brass (?) of Cunobelinus, showing a horse with the inscription CVN [obelinus] on the obverse, and on the reverse an ear of corn with the letters CAM [ulodunum], proving that the piece was issued from the Colchester mint. Both are now in the British Museum.

In the Guildhall Collection there is an uninscribed bronze coin, found at London Wall.

To summarize the archaeological evidence, we see that the population of our district, in the Early Iron Age, like that of the preceding periods, lived close to the river. Pottery is the best proof of settlement or occupation in such a case, and pottery of the Early Iron Age, from the Hallstatt period onwards, is not lacking among the river finds. The Hallstatt phase, however, is but sparingly and casually represented, and by far the greater number of our Celtic antiquities date from the later periods of La

Tène. It seems clear that the Celtic immigrants—Gaels, Brythons and Belgae—flowed into the country by way of the smooth tidal waters and the broad valley of the Thames. They do not seem to have founded any considerable permanent settlement in this area. The fable of a Celtic town on the site of London is, as we shall see in our next chapter, entirely without archaeological or historical support, though it is a fable which, by dint of obstinate or thoughtless repetition, has acquired, in certain quarters, the character of an historical truth.

For Further Reading : J. M. Kemble, A. W. Franks and P. G. Latham, *Morae Ferales*, 1863—one of the early classics, still valuable on account of its admirable and accurate illustrations and careful descriptions; Romilly Allen, *Celtic Art*, 1904; *British Museum Guide to Early Iron Age*, 2nd ed., 1925; J. Evans, *Coins of the Ancient Britons*, 1864, *Suppt.*, 1890; T. D. Kendrick, *The Druids*, 1928; C. F. C. Hawkes, J. M. L. Myres, C. G. Stevens, *St. Catherine's Hill* (Proc. Hants Field Club, XI, p. 140 ff.).

CHAPTER VII

ROMAN LONDON: HISTORY AND TOPOGRAPHY

THE idea of a pre-Roman London has a peculiar fascination for some writers, but it must be admitted that the archaeological evidence is not in its favour. The lowest level on the site of London which affords proof of continued occupation is the Roman level, and this lies immediately upon the gravel and brick-earth. Nor do the theories of a Celtic origin for the name of the town amount to anything more than ingenious, but unsubstantial, speculations. It may be that the two little hills on which the Roman town of Londinium was eventually founded were habitable towards the close of the neolithic period, but relics of unquestionable neolithic date, as we have seen, are extremely scarce within that area. Little, indeed, has been found on or near the site of Londinium which can be assigned to the Bronze Age [1]; and the Early Iron Age is but casually represented. Pottery which was at one time ascribed to the 'Late Celtic' period is now regarded, and no doubt correctly, as Roman. The pile-structures which have been found by the Walbrook, or in the vicinity of the Thames, all belong to Romano-British times—a fact proved conclusively by the archaeological contents of the sand, peat or soil upon which they were erected. Prehistoric finds within the City area are surprisingly few, and, if we argue from such evidence, Hammersmith, Mortlake, Twickenham or Brentford have far better claims to be described as prehistoric settlements than London has. The case for a

[1] *Antiq. Journ.*, VII, p. 298.

pre-Claudian settlement of Italian traders, based only upon the finding of sixteen or seventeen pieces of Italic ware in the City and Southwark areas, has been very ably presented by Dr. T. Davies Pryce and Dr. Felix Oswald [1]; but there seems no necessity for associating these pieces with the idea of such a trading-station. Although it is highly probable that some of them were brought over before the Claudian invasion, they need imply nothing more than casual intercourse with the Continent.

We may assume, therefore, that the ground upon which the City of London now stands was not permanently occupied, and was not even chosen for any considerable dwelling-site of a temporary kind, before the Claudian conquest.

The question has been clearly summarized by F. W. Reader:

'From the great scarcity of earlier relics actually found in the soil underlying London, it seems almost certain that no settlement of importance existed on the site in pre-Roman times. Many earlier objects have been procured from the bed of the Thames, and remains of earlier settlements have been discovered beyond London, but it is difficult to conceive that if any considerable British town preceded *Londinium*, all traces of it in the shape of pottery fragments, etc., should, by reason of subsequent occupation, have been so entirely obliterated, while, as some would have us believe, the place-names have survived.' [2]

Caesar has nothing to say about the site of London; probably for the good reason that there was nothing to be said. He must have passed close to it when, in 54 B.C., he moved along the right bank of the Thames in search of a crossing. He was aiming a blow at the stronghold of Cassivellaunus (Verulamium, St. Albans), and he took his men across the river at the first fordable point, and then only with difficulty.

The place at which Caesar crossed the Thames is not known, in spite of serious and continued efforts to produce evidence. It should be remembered (though it is frequently forgotten) that the course and depth of the Thames in Caesar's time are unknown to us; but there can be no

[1] *Arch.*, LXXVIII, p. 73. [2] *Arch. Journ.*, LX, p. 213.

doubt whatever that the river did not then flow everywhere in its present channel. Caesar, in his own account, mentions barriers of stakes which were planted in the stream, and these have been identified with stakes found in various places and set in various directions. We shall briefly describe some of these later, in what seems to us to be the proper place for such a description. But whether Caesar got across the river at Coway Stakes, at Petersham, Brentford, Kingston, Chelsea, or Westminster (and all have more or less ingenious advocates) is a matter of no great importance. What is of importance is that he did get across somewhere, and that his expedition brought the south-eastern part of Britain into definite touch with the Roman Empire.

Although, in the interval between Caesar's expedition and the actual conquest of Britain under Claudius, the influences of the Roman civilization were gradually spreading into this country, it was not until Britain became a Province of the Empire that those influences were definitely established.

In A.D. 43 the attitude of the ruling British tribe, the Catuvellauni, was offensive to Rome, or at least provided an excuse for military measures, and the Emperor Claudius decided to send a strong force into the island and to reduce it to complete subjection. For this purpose he dispatched an army of about 40,000 men under the experienced command of Aulus Plautius. The invaders were greatly assisted by the revolt (or treachery) of the Regni in Sussex and of the Iceni in East Anglia ; and Plautius, with the aid of the insurgents, very soon had the better part of South-Eastern Britain under his control.

At the time of the Claudian invasion, Colchester (Camulodunum) was the principal town of the island, and it was therefore the first objective of the Roman troops. The choice of a good site for his military base, with open communications and well situated for defence, was a matter of the first importance for the commander-in-chief. He chose a gravel-capped hill on the north bank of the Thames, with a stream (the Walbrook) flowing just below the

western slope and forming, at its junction with the river, a place eminently suitable for the development of a port. Guest, in a celebrated passage, has written: 'When, in the autumn of the year 43, he [Plautius] drew the lines of circumvallation round his camp, I believe he founded the present metropolis of Britain.' [1]

The choice of the Roman general was certainly a good one. To the east of the site spread the marshes of the Lea; to the north, but at some distance, was the heavily timbered region of the clay; to the west, beyond the little valley of the Walbrook, was another hill, available for future development, and beyond that the valley of the Fleet or Holebourne; while on the southern side flowed the tidal waters of the Thames. The tree-growth of the hills would have been light, pleasing to the eye and offering no serious obstruction. The river-gravel which, with patches of brick-earth, covered the hills to a depth of about 20 feet, provided a dry and convenient surface.

As the movement of the invasion extended rapidly to the north and west, Londinium became of less military importance, and indeed was little more than a base depot. Camulodunum was still regarded as the capital. But the port of Londinium developed rapidly as a trading centre. Commerce followed the Roman eagles as surely as, at the present day, it follows the flags of empire.

At first, the development of the town was probably confined to the hill east of the Walbrook, with its highest point in the neighbourhood of what is now Leadenhall Market, but there is evidence to show that the settlement had already extended to the other hill, on which St. Paul's Cathedral now stands, within Claudian times. In 61, the revolt of the Iceni under the justly infuriated Boudicca (Boadicea) seriously threatened the Roman power in Britain. Camulodunum was sacked by the insurgents, with a wholesale massacre of the Romano-British populace, and then came the turn of Verulamium and Londinium. As a revolt against foreign tax-collectors, the rising had a moral and social impetus which gave it an extremely

[1] *Orig. Celt.*, II, p. 405.

formidable character. After the final suppression of the revolt by Suetonius, Londinium was a pile of burnt ruins. The sack of the town by Boudicca brings it into historical notice for the first time, and it is mentioned by Tacitus as a place not dignified by the title of *colonia*, but already celebrated for trade and thronged by merchants. In spite of the disaster, the development of the place seems to have continued rapidly, and it soon became the largest, though by no means the most important or the most beautiful, town in the Province. Under the governorship of Agricola (78–84) Londinium and the whole of the south-eastern part of Britain entered upon a phase of comparative peace and prosperity. The civil and military zones were clearly separated; Wales, even if not wholly amenable, was no longer the scene of intensive military effort; and the war of invasion had moved far up into the north.

It is possible that the building of the town wall of London (but not of the bastions) dates from this period, though it is equally possible that it belongs to the early part of the following century. When Hadrian visited the Province in 119, he found Londinium a thriving town, notable, in the words of Sir Christopher Wren, for 'the Concourse of Merchants and Convenience of Commerce'. But the period of its full prosperity lies between the years 211 and 275. During the sixty years or so of the *Pax Romana*, Britain enjoyed a tranquillity which she was not to know again for many centuries.

Towards the close of the third century, the Saxon pirates began to appear off our south-eastern coasts, and their raids grew so audacious that a special defence was organized under a general officer known as *comes litoris Saxonici*, the Count of the Saxon Shore. The first *comes* was probably appointed by Diocletian. We need not here discuss the adventure of Carausius, that sturdy and ambitious admiral who made himself the ruler of an independent Britain, or the brief usurpation of Allectus. The main historical fact is that Roman Britain became more and more exposed to her enemies and less able to

resist them. Frankish and Saxon raiders landed on the south and east, while Picts and Scots, breaking through the northern defences, forced their way into the heart of the Province. Matters went from bad to worse, until, in 368, London itself was attacked by the Franks and Saxons. A vigorous counter-offensive by Theodosius, under orders from Valentinian, cleared the country as far north as the Wall ; but the Roman power in Britain was now declining, and the Roman Empire was going the way of all empires and was beginning to fall to pieces. In 383, Maximus, a Spaniard who commanded the Roman forces in Britain, took upon himself the title of Emperor, and, withdrawing the troops from the island, attempted the conquest of Gaul. The Province, thus deprived of its military defences, without proper garrisons, and with no effective territorial army, was unable to beat off the raiders, whose descents were now rapidly assuming the character of an invasion. Stilicho's re-organization of the military elements in Britain was too late ; and in 407 or 409 a soldier named Constantine was elected Emperor by his men, and sailed across the Channel with all that remained of the Romano-British forces. In the following year the Britons appealed to the Emperor Honorius for assistance ; but by this time the Empire was fighting for existence, and the Britons were told to shift for themselves.

In Æthelwerd's Chronicle, under the year 418, the departure of the last Romans in Britain is thus described :

> ' In the ninth year after the sacking of Rome by the Goths, those of Roman race who were left in Britain, not bearing the manifold insults of the people, bury their treasures in pits, thinking that hereafter they might have better fortune (which never was the case) ; and taking a portion, assemble on the coasts, spread their sails to the winds, and seek an exile on the shores of Gaul.'

We shall now examine the main features of Roman London, extending our survey, in a later chapter, to the road-system, in so far as it concerns our district, and to other traces of the Roman occupation in the County of Middlesex.

The most extensive and most important Roman remains

in London are those of the town wall. It must be remembered that systematic archaeological investigation never has been, and never can be, carried out in London ; and that our knowledge of the wall depends almost entirely on what has been casually discovered in the course of building operations, and to a lesser extent upon records, old maps, drawings and engravings.

The Roman wall enclosed an area of about 330 acres, and the circuit of the defensive works may be taken as a little over 3 miles. London was contained within the lines of the Roman defences until the Middle Ages, and the greater part of the wall, though with many additions and repairs, was standing until 1766, when much was destroyed by the Commissioners of Sewers, on the ground that such action was desirable in the interests of public health. Up to that time, the course of the wall had not been greatly interfered with. A portion was pulled down for the building of the Tower, and another, between 1276 and 1310, for the accommodation of the Blackfriars' Monastery. As the ground-level rose in successive ages, the wall was extended upwards, and the Roman work became a deep foundation. At the time of the Viking raids it was restored and strengthened by Alfred ; the Normans rebuilt parts of it ; and according to Gough, the east and west portions were ' repaired by the barons . . . with the materials of the Jews' houses '.

We must remind the reader that the level, or levels, of Roman London are now sunk far below the present level of our streets. It has been set down as a general principle that the soil of a populous town rises at the rate of about a foot in a century. A constant or equal rise, obviously, cannot be assumed, but débris of all sorts does accumulate steadily, and this continued elevation of the occupied surfaces has to be taken into account. Within the Roman period, a deposit varying in thickness from 1 or 2 to 10 feet was laid down both inside and, in some places, immediately outside the wall. That deposit is now reached at depths ranging from 9 or 10 to 22 feet or more below the present ground-level. The remains of the wall, there-

fore, are more or less deeply buried, in common with those of all the constructions of Roman times.

The wall itself, apart from its bastions (to be considered later) is certainly the work of one period, built with care and with method, and in accordance with a set design. It is built on a foundation of flints, ragstone and puddled clay, rammed into a trench which was cut to a depth of about 4 feet in the gravel or brick-earth. Above this, there is usually a layer of untrimmed ragstones, cemented together, and forming a substantial footing. The materials of the wall were brought to the site and specially prepared. For the main construction, Kentish ragstone was used, squared for the faces of the wall. The plinth is made of

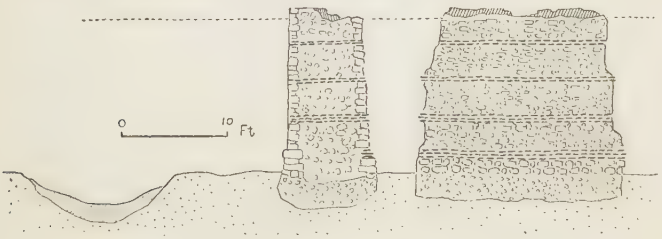


FIG. 23.—TOWN WALL OF LONDINIUM, WITH DITCH

a red ferruginous sandstone, which also appears to have been brought from the Kentish quarries, and which, according to Dr. P. Norman, may be identified with sandstone at Maidstone and Ightham.[1] The inner mass of the wall is formed of irregular, unhewn blocks of ragstone, with a few flints, held together by a white or greyish mortar of extraordinary hardness. This mortar was poured over the stones in a liquid, or semi-liquid, state. At vertical intervals of 3 feet or so there are bonding courses of two or three rows of red (occasionally yellow) tiles or bricks, firmly set in the mortar. There is a set-back of about 3 inches at each course on the inner face: the outer face is practically vertical. On the inner face of the wall, at a level corresponding to that of the plinth on the outer face,

[1] *Lond. Topog. Record*, IV, p. 11.

there is a course of tiles which consists of three rows, not carried through the wall as a bonding course like those above it. Above the plinth, the wall varies in thickness from 7 to 9 feet, and its height, not known to exceed 16 feet in any measured fragment, may have been from 20 to 25 feet. It is very significant that no random or re-used materials were used in the construction of the wall, such as were afterwards used for the bastions.

Whether a ditch was carried outside and parallel to the wall throughout its entire length, and whether it was banked on the inner side, cannot be definitely stated. There are unmistakable traces of a ditch, and doubtful traces of a bank ; and it may be said that a more or less continuous ditch is certainly probable.

The structure of the wall is shown by our illustration (Fig. 23), and its course is made clear by the folding map at the end of the volume.

All the evidence relating to the date of the wall has been thoroughly and skilfully reviewed in the Report of the Royal Commission on Roman London. The inference is ' that the original London wall was built during the half-century following the Boudiccan rebellion '—that is, between A.D. 61 and 110. The inference, which, indeed, has almost the weight of an incontrovertible conclusion, is well founded. The bonding courses, though typical of Late Empire work, do not preclude the possibility of an earlier date ; the method was employed in the first century, and of this we have actual proof at Colchester. There is every reason to suppose that the wall was raised, not long after the destruction of the town by Boudicca, as an essential part of a scheme for defence and revival.

We will now follow the course of the wall, as shown by actual discoveries, from the Tower to Ludgate.

A small portion may still be seen at the south-east angle of the White Tower, and it is possible that the Wardrobe Tower is built upon the remains of a Roman bastion. Another portion is to be seen beneath the floor of the Bowyer Tower. A section of some extent was incorporated in a warehouse adjoining Postern Row, but a length of

about 50 feet, and some 15 feet high, may be seen in Trinity Place : this was re-faced in Medieval times. Other parts of the wall in Trinity Place were destroyed for the construction of the Inner Circle Railway in 1882. A further series of traces proved the course of the wall in a straight line towards Aldgate, and in 1905 a fine section, about 40 feet long, was exposed during work on the site of Nos. 18–20 Jewry Street, and No. 1 Crutched Friars. The Skinners' Company, ground landlords, took steps to have this preserved, and it was built into the basement of Roman Wall House, where it may now be seen : probably the most perfect example of the appearance of the wall on its inner side. In Jewry Street the wall is beneath the fronts of the buildings on the east side of the street.

In 1887 a long strip was revealed during widening operations, running exactly parallel with, and towards the centre of, Duke Street. It was casually described by Loftus Brock, but without adequate particulars. This was the longest continuous length of the wall ever exposed, and seems to have been not less than 120 yards from end to end. Portions of various lengths were found in Bevis Marks in 1880, 1884, and 1923. At the time of the 1884 excavations a bastion was found here, at the junction with Goring Street. Public imagination was profoundly moved by the discovery, and a committee was formed to preserve this and other London antiquities ; it was not long, however, before both committee and bastion ceased to exist.

Passing from Bevis Marks, the wall runs, curving in a north-westerly direction, behind the north side of Camomile Street, forming the boundary of the churchyard of St. Martin Outwich. But no part of it is preserved, until we come to the Church of All Hallows in London Wall, where a small portion, uncovered in 1905, forms the northern boundary of the churchyard. Here, and further west, at the corner of Blomfield Street, sewers or conduits were cut through the wall to allow for the passage of the tributary streams of the Walbrook. The neglect and blocking of these conduits, towards the end of the Roman

occupation, turned the land to the north of the wall into a marshy, unwholesome region, which was to be known in later times as the Moorfields. Human skeletons have been found in the vicinity of the conduits, and, indeed, along the course of the Walbrook generally. At All Hallows, the stream had bored down to a lower channel, and a new drain of cemented tiles was made to receive it. A grid of iron bars had been set at the mouth of the culvert in Blomfield Street. In 1835 another culvert was observed near what is now Copthall Avenue, and described as ' a red brick arch for the transit of water '—this was probably made to take the most westerly confluent of the Walbrook under the wall.

A length of the wall, extending for about 75 yards, stood as part of the enclosing wall of Bethlehem Hospital until 1817. West of Moorgate Street, portions have been uncovered from time to time, and the course of the wall can now be traced with fair accuracy to the angle-bastion at St. Giles' Churchyard. Here it takes a sharp turn towards the south, and its line is marked by two bastions. In 1922, part of another angle-bastion and a considerable length of the wall were exposed during excavations on the site of the Castle and Falcon Hotel in Aldersgate Street. Here, again, the wall changes direction rather abruptly, and follows a line almost due east-west. Between this point and the next angle-bastion on the old site of Christ's Hospital (now that of the General Post Office), the wall has been uncovered in several places (1887, 1907–9). To the west of Aldersgate Street it formed the southern boundary of St. Botolph's Churchyard, and is now part of the north basement area of the Post Office, and still to be seen. Another, but smaller, portion of the wall, together with a large part of the hollow angle-bastion, is preserved in the Post Office yard. Taking its final turn at this bastion, the wall strikes in a southerly direction towards the Thames. At Newgate, according to Dr. P. Norman, ' there had at one time been a tremendous breach in the wall, which had been strongly repaired '.[1] Its

[1] *Arch.*, LIX, p. 130.

course towards Ludgate Hill is definitely known from excavations made on the site of Newgate Prison in 1903, and at the Old Bailey in 1900, 1907 and 1908. A small section, between Newgate and the Old Bailey, was exposed during work on the premises of the Oxford University Press, Warwick Square, in 1922, and a part of this has been preserved.

From Ludgate Hill to the Thames, the course of the wall cannot be proved. It seems reasonable to suppose that it continued in a straight line until its angle with the southern defences above the river, but the evidence is very slight. Roman masonry was found in 1843, built up between the walls of the Blackfriars' Monastery; and a fragment of massive walling, part of which may have been Roman, formerly existed beneath *The Times* Office in Printing House Square.

A writer in the *Victoria County History* considers it proper to give due weight to the discovery of a wall in Carter Lane. If this was a part of the continuous defensive works, it would imply a re-entrant of the wall below Ludgate in a south-easterly direction. But the fragment was ill observed and ill recorded, nor does there seem to be any particular reason for the suggested line.

The portions of the town wall which are still preserved may be seen at the Wardrobe Tower in the Tower of London; in Trinity Place and Cooper's Row; in the basement of Roman Wall House, Crutched Friars; at All Hallows Church, London Wall; in St. Alphage's Churchyard; between St. Botolph's Churchyard and the General Post Office; in the yard of the General Post Office; and at the back of Warwick Square (Oxford University Press). None of these sections are very impressive, and all have a decayed and grimy appearance. The best-preserved portions are those in Roman Wall House and at the General Post Office.

The existence of a southern defensive wall, between the town and the river, may certainly be assumed; but here again we have a lack of substantial evidence. Roach Smith recorded the finding of a wall between Lambeth

Hill (south of Queen Victoria Street) and Queenhithe, during excavations for a sewer. It was from 8 to 10 feet thick, rested upon a timber substructure, and contained many re-used fragments of sculptured or moulded stone—a fact of prime significance. Part of it was again exposed in 1924, and it was then found that it ran between two rows of wooden piles. At seven other points in Upper and Lower Thames Street, traces of a wall and of oaken piles have been found at various dates. In 1911, a section of this wall, built on a foundation of timber, was exposed at 125 Lower Thames Street. The southern wall—assuming that the discovered remains are those of a continuous defence, and all of the same date—differs essentially in method of construction from the wall on the landward sides of the town. Apparently it had a base of chalk and stones, with a course of sandstone blocks held together by a mixture of quicklime, sand and pink mortar ; and, above this, was built of ragstones and flints, with courses of assorted tiles—and it is clear that it contained fragments which had previously formed part of houses and other buildings. It would seem, therefore, that the southern wall was not set up until some time (perhaps a long time) after the erection of the landward defences ; nor was it made with specially prepared materials, or with consistent design. From this we may infer that it did not form part of the original scheme of enclosure.

A similar observation can be made with regard to the bastions of the town wall. We have substantial evidence of fifteen of these bastions. The existence of two others (between Newgate and Ludgate) may be taken as proved by Leake's map, etched by Hollar in 1666 ; and four on the eastern side of the wall are known only from the survey of Ogilby and Morgan, from a plan of Elizabethan date, and from descriptions by the London historian, Maitland. Without exception, these are additions to the wall, and were probably built against it at a time not far removed from the last days of the Roman rule. They are made of waste materials, fragments of demolished buildings, broken statuary, tiles, tombstones, and all sorts

of convenient rubbish, roughly cemented with inferior mortar. It seems clear that they were set up hastily, and in circumstances which made it imperative to use any material which came to hand. They are of horseshoe plan, and for the most part with solid bases, projecting generally about 15 feet beyond the line of the wall. The angle-bastion on the site of the General Post Office was of hollow construction throughout, but apparently filled with loose rubbish. Four other bastions—at St. Giles' Churchyard, east of Aldersgate, near King Edward Street, and in the central part of the General Post Office site—were built hollow. The seven eastern bastions, which are uniform in design, with solid bases, may be taken as one group ; the others are slightly irregular in form, and were probably added at different periods. Our folding map shows the position of the bastions : detailed accounts of those excavated, and excellent reproductions of plans, photographs and drawings, are to be found in the Royal Commission's work on Roman London and in the *Victoria County History*.

It should be noted that the angle-bastion at the General Post Office differed from the others in the careful pointing and smoothing of its outer face, and in the fact that no extemporized mortar or re-used materials were employed in its construction. The bastion at Camomile Street contained a peculiar assemblage of fragments : broken columns, cornices, door-jambs and pilasters, and the well-known sculptured figures of a soldier and of a lion which are now in the Guildhall Museum. A similar use of architectural débris was found in the bastion at All Hallows, London Wall, and again in the angle-bastion at St. Giles' Churchyard, and in others.

It is possible that some of the discovered bastions are not of Roman date ; but they must, in any case, have been built at, or soon after, the end of the Roman dominance. We may hazard the conjecture that some were built in the stormy days of the fifth century. The use of sculptured pieces, of gravestones and of the remains of houses is clear proof, either that some of the bastions

were set up by the Romans themselves in a time of desperate emergency, or that they represent a later strengthening of the wall by some other people, to whom Roman burial-grounds and Roman houses were mere quarries for stone. Many interesting conjectures are possible, and further discoveries may perhaps throw new light on the history of these peculiar structures.

Remains of bastions are still to be seen in St. Giles' Churchyard and in the yard of the General Post Office.

The gold medallion of Constantius Chlorus, found with a great treasure at Beaurains in 1922, has on the reverse a conventional representation of a gateway and part of the wall of London. Constantius recovered Britain from the usurper Allectus in 296, and the gratitude of the city (symbolized by a figure kneeling in front of the gateway) is commemorated by this medal. Both wall and gateway are shown with battlements, and although the design is frankly conventional, and probably the work of a foreign artist who had never visited Britain, it is of interest as giving, at least, the contemporary idea of London wall.

There is no direct evidence of a bridge crossing the Thames at Londinium in Roman times, but we are almost bound to assume that such a bridge existed. Many objects were recovered from the river when the new London Bridge was being built in 1824–31. Few of these, however, could be definitely associated with the idea of a Roman bridge, and many of them were wholly incompatible with the idea. Thousands of Roman coins were found, and attempts have been made to connect these, by a theory of ritual, with a bridge: such theories may be reasonable enough, but do not amount to proof. The presence of numerous Saxon coins, and a vast number of others belonging to many periods, in the same place, somewhat nullifies the ritual hypothesis.[1] At the same time, we may be prepared to allow that the finding of Roman coins in such numbers and in such a position does offer presumptive evidence in favour of an established crossing of some kind near this point. But the finding of tiles

[1] *Arch.*, XXV, p. 600.

and pottery, keys, knives, and miscellaneous rubbish does not bring to our minds the idea of a bridge. These things were found only because extensive and continuous work was carried out, for a period of nearly seven years, in that part of the river: in all probability, Roman relics are distributed abundantly along the whole course of the Thames below the wall. Yet, if the archaeological evidence amounts to nothing, speculation is still in favour of a

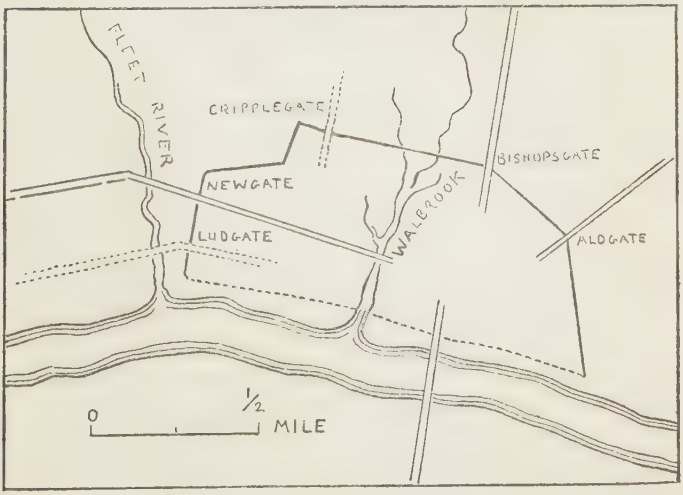


FIG. 24.—LONDINIUM: CONJECTURED SYSTEM OF GATES AND ROADWAYS

Roman bridge. There may have been a bridge of wood, its timbers long ago decayed or carried away by the stream. Where it stood, we cannot say. It is, of course, possible that the crossing of the river was effected by means of a ferry or *trajectus*. There was a Roman settlement on the site of Southwark from an early date, and here the southern roads must have converged, so that a bridge or ferry was essential.

Of the lay-out of Roman London we know nothing at all. Attempts to reconstruct the appearance of the town in Roman times have no greater value than that of other

works of fiction, based upon a few scattered materials and due rather to the exuberance of the imagination, or the desire to please the unlearned, than to a conscientious regard for mere truth. Excavations have disclosed the remains of a few buildings, a few walls, and one gateway.

Discoveries made at Newgate in 1875, 1903 and 1909 have made clear the existence of a double entrance, about 35 feet wide, flanked by square guardrooms ; and it is of significance that the gateway here is of considerably later date than the wall, for the plinth of the wall is 4½ feet below that of the gateway. During the excavations in

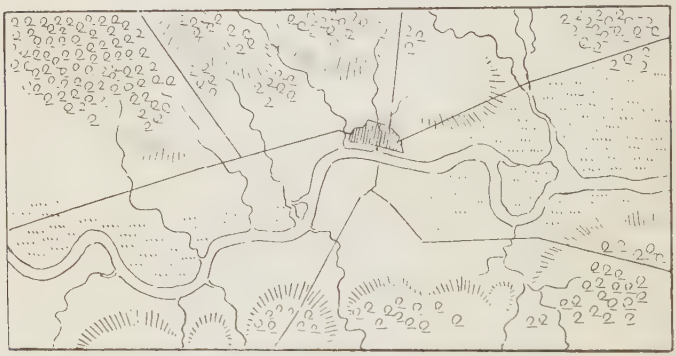


FIG. 25.—ENVIRONS OF LONDINIUM, SHOWING THE MAIN ROADS

1903 an arched subway was found below the gate, at right angles to the road, and having a curious raised water-channel at one side.

Little is known of the other Roman gateways, nor is the course of the main roads which entered the town by any means certain. It seems probable that the road from Colchester (Camulodunum) passed through the wall at Aldgate, that the road from York (Eburacum) entered through Bishopsgate, and that the road leading westward, and joining the Watling Street about 2½ miles beyond the wall, passed out between the guardrooms of Newgate. Another road seems to have led from Ludgate in the direction of Fleet Street, but the assumed course of this

road can be guessed only from the evidence of a few burials. Remains of Roman masonry which may possibly be those of flanking works or posterns have been found at Aldgate and Bishopsgate. There is no evidence of a gateway in the conjectured line of the southern wall. Billingsgate is the place naturally chosen by tradition for the approach to the Roman bridge.

The days of slow excavation, when picks and spades did the work and the rubbish was taken away by carts and horses, are now over. Our City contractors go about their job with remorseless efficiency and with alarming speed. A little may be snatched here and there, but men are replaced by mechanical excavators and other engines of tremendous power, and much that would be of supreme interest is unavoidably lost or broken or disregarded. What we know of Londinium is largely contained in records made during the last century, and even then research was by no means easy. We owe a very large part of our knowledge to the patience and the undismayed enthusiasm of men like Roach Smith and J. E. Price, and particularly to the courageous efforts of the former.

Such fragments of the houses of Londinium as have been preserved bear out the statement of Professor J. H. Middleton, that the Romans, ' though devoid of originality or even of good taste in artistic matters . . . were above all things a thoroughly practical people ; skilful engineers rather than graceful designers.' [1] And Dr. R. E. M. Wheeler observes very justly that the general aspect of the architecture was ' not inspired '. The carving of pediments, columns or shrines he describes as ' usually hackwork of the poorest order '. [2] The systems for water-supply, drainage and heating were excellent ; the houses themselves, judged by our own standards, incredibly ugly. Those of some pretension had upon their floors the painfully ingenious devices of a mosaic pavement. The plastered walls were decorated in fresco or in tempera with designs for which no one now claims, and no one could claim, the least artistic merit, and in colours which could never have been

[1] *Arch.*, LII, p. 659. [2] *R.C.H.M. Rom. Lond.*, p. 45.

pleasing. But perhaps we should remember that most of these were probably the residences of business men, or of retired generals. Few of the houses were built entirely of brick. Most of them were made of timber and daub, but the better sort had walls of rubble or chalk with brick bonding courses. (Building stone was not available on the site, and had to be brought from a distance.) The floors were sometimes of plain rammed earth, either stamped flat or covered with mosaic (*tesserae*), or with a layer of cement. Panes of thick greenish glass were set in the windows of the more important houses. In the British Museum there are several pieces of wall decoration from Leadenhall Street and elsewhere, and other stucco fragments may be seen at the Guildhall. Specimens of roofing-tiles, box flue-tiles and others will be found in all the London collections.

The remains of only one important building are known —those of the basilica, or town hall, which stood upon the site now partly occupied by Leadenhall Market. It would seem that the remains are those of two buildings: the first of ragstone with bonding courses of brick; and the second entirely of brick, with an apse at the east end. The later building was about 410 feet long, and the earlier one about 90 feet shorter. A whole complex of adjacent buildings has been noted, including an arcade on the north side of Lombard Street found in 1925. Part of a wall from the site of Leadenhall Market is preserved in the Crypt of the Guildhall: it has four courses of tiles, above which are roughly squared stones set in mortar. In digging for a sewer in Lombard Street and Birchin Lane in 1786 many Roman foundations were exposed, with various pavements, tiles, and large pieces of coloured stucco, and 'a piece of solid archwork composed of stones of irregular forms, and yellow mortar almost as hard as the stones themselves'.[1]

The most complete remains of a private house are those found in 1848 during work on the site of the Coal Exchange in Lower Thames Street. Part of the lower wall and the

[1] *Arch.*, VIII, p. 116.

PAVEMENT FROM LEADENHALL STREET
(ABOUT 11 FT. SQUARE) *British Museum*

PAVEMENT FROM THE BANK OF ENGLAND
(11 FT. SQUARE) *British Museum*

hypocaust (heating arrangement) of this building are preserved in the basement of the Exchange. The walls were entirely of bricks, well constructed with good white mortar. Two apsidal chambers, warmed by hypocausts, were connected by a small doorway. To the north, south and east of these chambers were oblong rooms of uncertain dimensions. The inner walls were covered with stucco. In a rubbish pit near by were found pieces of leather sandals and broken pottery, coins of Nerva, Domitian and Aurelius, an armlet of copper and brass wires, a spoon, and a bone hair-pin.

Of the mosaic or tessellated pavements which have been preserved, the best are those from Bucklersbury (Guildhall Museum), Bank of England (British Museum), Leadenhall Street and Threadneedle Street (British Museum). Tessellated pavements, or fragments of them, have often been found within the City ; one of the most recent discoveries was made in February, 1929, underneath the Church of All Hallows, Barking-by-the-Tower. Others have been discovered, at various times, in Bishopsgate Street Within, Birchin Lane, Bush Lane, Cannon Street, Cornhill, Fenchurch Street, Finch Lane, Lombard Street, Lothbury, Mincing Lane, Queen Victoria Street, and elsewhere.

We reproduce the pavements from Leadenhall Street and the Bank, both of which (the latter complete, but the former now only represented by the central pattern and a small piece of the bordering decoration) are in the British Museum. These examples do not compare favourably with the best Italian work of the same period ; the *tesserae* are relatively large and coarsely cut, the colours dull, and the designs ingenious rather than pleasing. But we must remember that they are floor-decorations, and were never intended to be looked at, as we see them now, stuck up on the side of a wall. Beneath one corner of the Leadenhall Street pavement (which represents Bacchus riding on his tiger) was part of an urn containing a human jaw-bone. The Bank pavement, though less ambitious, is more successful as a piece of decorative work, and shows the characteristic *guilloche* border.

Little can be said here concerning the portions of walling unconnected with house-foundations which have been discovered at various times, and little is known of their general purpose and direction. Roach Smith described the wall found opposite Paternoster Lane as ' of intense hardness ', and said that it took the workmen three or four days to cut through it. According to him, it ran ' towards the centre of St. Paul's '. Still less can be said of the wall found in Carter Lane, nor is the date of the discovery recorded. Other strips of walling were found in Knightrider Street in 1863.

Portions of herring-bone pavement or *spicata testacea*, consisting of tiles set on edge and cemented together, are to be seen in the British and Guildhall Museums.

Only two baths have been observed within the City : one in Cannon Street, and one in Threadneedle Street. The bath which is preserved in Strand Lane has a doubtful history and is of uncertain age. It was formerly lined with marble slabs, said to have come from the house of Elizabeth's favourite, Essex ; and the bricks of the original construction are not of a known Roman type.[1] The bath itself does not provide intrinsic evidence of Roman date, and it is not established that Roman remains have been actually found in its immediate neighbourhood. It is, of course, situated outside the town wall, but is mentioned here for the sake of convenience.

Timber constructions have come to light in the bed of the Walbrook and near the Thames below the City. ' Immense quantities of piling ' are stated by J. E. Price to have been found about 1843 at Billingsgate ; but here, as in so many other cases, no detailed record has been preserved. Fortunately, the pile constructions of the Walbrook have received more attention. These were by no means of a primitive kind. Well-made planks were supported on mortised piles, and formed wharves, platforms, and divided compartments. There is little doubt that there were also superstructures of timber, but of these no certain traces have been found. Iron nails were

[1] *Antiq. Journ.*, III, p. 62 ; R.C.H.M., *Rom. Lond.*, p. 147.

used in these buildings. F. W. Reader, who examined remains in the Walbrook in the Blomfield Street area, just outside the wall, and wrote a careful and well-illustrated account of them, believed that he found traces of an industry which had been carried on at or near these constructions, indicated by pieces of vitreous matter, burnt glass and crackled flint-stones.[1] A more sinister association is possible. Tradition points to the Walbrook as the place where criminals were executed, and it is certain that many hundreds of human skulls (presumably all male) have been found in the bed of the stream from time to time. The majority of these are complete, or nearly so, and they are not associated with other human bones. A human head, or a skull, may be trundled for a considerable distance in running water, and we may suggest the possibility that some of the wooden platforms were places of execution. It is, of course, sufficiently evident from the débris found in their vicinity that many of the pile structures were dwellings. General Pitt-Rivers, in 1886, watched the excavation of a large area to the south of London Wall, in the Walbrook valley, which contained many decayed piles, some in rows and others bound together by planks. He was determined to believe that these were traces of pre-Roman settlements, and was perplexed by the nature of the associated relics, which were exclusively of Roman date—tiles, Gaulish pottery, styli, iron knives, leather sandals, and coins of Vespasian, Nerva, Trajan, Hadrian, and Antoninus.[2]

Near the mouth of the Walbrook, massive timbers were found on the site of Cannon Street Station in 1868, presumably marking the position of wharves or piers. Other heavy wooden works were found in the neighbourhood of Miles Lane (King William Street) in 1920–21, and an extension of them was discovered in 1926. These would seem to indicate the line of the river bank or of a made harbour in the early days of the Roman occupation, and the remains, in so far as a general plan is clear, are appar-

[1] *Arch. Journ.*, LX, p. 137.
[2] *Anthrop. Review*, V, p. lxxi; *Arch. Journ.*, XXIV, p. 61.

ently those of two lines of oak beams with cross-walls or jetties. The walls consisted of a single width of oaken baulks laid horizontally.[1] It may be noted, that the line of the assumed southern wall of the town passes very close to these timbers, and probably below them—that is, between the timbers and the river. If the remains are those of wharves and jetties (and it is improbable that they can be anything else), it is evident that a part of the northern bank was reclaimed by the Roman engineers, or that the level of the stream fell naturally, or that the bed of the river underwent some change at a date subsequent to the building of the wharves. The river wall, as we have seen, clearly dates from a late period of the occupation. An early date for the timbering is implied by the fragments of pottery found within the main line; for these, where they can be dated with certainty from the potter's marks, belong to a period before A.D. 100.

One other feature which belongs to an early stage in the history of London is to be noted; and that is the existence, between Gracechurch Street and the Walbrook, of a burnt layer. Excavations in King William Street in 1914 struck this layer at levels of 10 to 13 feet below the surface. It consisted of clay burnt to a red powder, charred wood, ashes, blackened roofing-tiles, and other traces of an extensive fire. The fire, in the opinion of Mr. F. Lambert, who watched the excavations, 'swept over this angle between the Walbrook and the Bridge, and reduced the clay-and-timber houses to a red dust'.[2] He notes that wood ashes had been observed in 1786 in Lombard Street, at a depth of 16 feet. As a matter of fact, they had been observed during the construction of the Walbrook sewer in 1774, and they were ascribed by Gough to 'the effect of some fire long before 1666', and indeed to 'the destruction by Boadicea'.

The objects found in the red or burnt layer are invariably of early date, and for the most part of the Claudian period. Blackened fragments of Samian ware and burnt coins of Claudius have been found in Eastcheap, and also on the

[1] *Arch.*, LXXI, p. 62. [2] *Arch.*, LXXI, p. 54.

site of Lloyds' Bank. The red stratum lies immediately above the original surface, and below the succeeding layers of Roman deposits. In Nicholas Lane an accumulation of fourth- and fifth-century material was piled at a height of 4 feet or more above the traces of the fire. Evidence of a less extensive conflagration, or of a disturbance of the earlier level, is afforded by the presence of a second burnt deposit, in places, above the red layer. This occurs over a late level of first-century date. Obvious explanations are sometimes correct, in spite of learned reluctance to accept them, and it is certainly reasonable to suppose that the burnt layer, corresponding as it does with the assumed position of the first Roman town, is visible evidence of Boudicca's revenge. If that is so, it is evidence of one of the most terrible episodes in the history of London, when the Britons of East Anglia massacred, hanged and tortured the helpless foreigners and the half-Romanized people of their own race who were patiently and industriously setting up the first buildings and organizing the earliest trade of our great commercial capital.

A discovery of unique interest was made in 1672 when the foundations were being dug for the north-west corner of St. Paul's Cathedral. Four pottery kilns were here exposed at a depth stated (though perhaps incorrectly) as 26 feet. The kilns were set cross-wise in a sandy loam, and one of them was 'full of the coarser sorts of pots'. They were seen and described by John Conyers, the ingenious apothecary, who has already been mentioned in connection with the Gray's Inn hand-axe. Sir Christopher Wren gave an account of pottery found near the same place. He says:

'The most remarkable *Roman* Urns, Lamps, Lacrymatories, and Fragments of Sacrificing-vessels, etc., were found deep in the ground, towards the North-east Corner of St *Paul's* Church near *Cheapside*; these were generally well wrought, and embossed with various Figures and Devices, of the Colour of the modern red *Portugal* Ware, some brighter like *Coral*, and of a Hardness equal to *China* Ware, and as well glaz'd.'[1]

[1] *Parentalia*, p. 265.

These kilns, the only ones found in London, show that pots of a plain type, domestic wares and so forth, were made in or close to the town during the early part of the Roman occupation, before the spread of the inhabited area to the west of the Walbrook. The vessels described by Wren, although some of them may have been the work of local potters, seem to have formed a mixed lot, including foreign wares. If the kilns dated from the first century, as a drawing by Conyers of one of the pots would certainly suggest, there would have been few if any houses in their immediate neighbourhood. They stood, indeed, in close proximity to one of the early burial sites.

Another feature of Londinium should be noted, and that is the presence, in certain areas, of great numbers of rubbish pits. These date from about A.D. 50 to the beginning of the fourth century. They vary in depth from a foot or two to 12 feet or more, and contain immense numbers of animal bones, particularly those of oxen, pigs and sheep. Of less frequent occurrence are the bones of horse, goat, dog, red-deer, roebuck and hare, and various birds. A few human bones have also been found in the pits. On the site of the General Post Office a great number of pits were examined by Dr. Philip Norman and Mr. Frank Lambert, and they explored another series in King William Street when houses were demolished to make room for the new buildings of the Phœnix Assurance Company in 1914. Three remarkably fine Samian bowls are now in the Phoenix offices. Such pits are numerous within the area of Roman London, and often lead to confusion in the recording of levels.

Ingenious and inventive artists have amused themselves by making ' restorations ' of Londinium, just as ingenious and inventive writers have amused themselves (and us) by giving picturesque and highly-coloured scenes of Romano-British life. Such fantasies, however great their skill and resource, have only a relative value. They are flimsy works of the imagination, and they must be looked at, or read, as the case may be, with a clear sense of their limitations in the matter of scientific accuracy. We

possess neither documents nor materials for anything like a complete idea of Romano-British life, still less for complete architectural reconstructions of Romano-British towns. Judgment is too often seduced by fancy, and learning too often the accomplice of fiction.

For Further Reading : J. Ward, *The Roman Era in Britain*, 1911 ; J. Ward, *Romano-British Buildings and Earthworks*, 1911—sound, lucidly illustrated, and not unduly technical ; C. Roach Smith, *Illustrations of Roman London*, 1859—of great importance as a record of discovery ; F. Haverfield, *The Roman Occupation of Britain*, 1924 ; C. Oman, *England before the Norman Conquest*, 5th ed., 1921—a clear historical review, pleasantly written ; W. Page, *London, its Origin and Early Development*, 1923—certainly the best book on this subject, though in some respects already out of date ; E. Conybeare, *Roman Britain*, 1915 ; R. G. Collingwood, *Roman Britain*, 1923—an excellent little book, recommended for the general reader ; W. R. Lethaby, *Londinium : Architecture and the Crafts*, 1923—contains some valuable illustrations ; G. M. Trevelyan, *History of England*, 1926 ; *Victoria County History, London*, vol. I, 1909—still an indispensable work of reference, with good illustrations, and an inventory which is of permanent value ; *Royal Commission on Historical Monuments, Roman London*, 1928—a complete and fully illustrated review of the entire subject, beautifully produced, and beyond comparison the best book on Roman London whether for the general reader or the student ; H. Ormsby, *London on the Thames*, 1924 ; R. E. M. Wheeler, *London in Roman Times* (London Museum Catalogues, No. 2), 1930.

CHAPTER VIII

ROMAN LONDON: ARCHAEOLOGY

NO archaeological evidence is of greater value or interest than that which is afforded by ancient burials. Nor is the value of such evidence exclusively archaeological, for it teaches us a great deal about the way of thinking, the appearance and habits of the people represented by these burials.

Graves of the Roman period have an additional significance. Burial within the walls of a town, or in close proximity to houses, was forbidden by Roman law. The dead were buried outside the town boundaries, and usually by the side of a roadway. Hence, the distribution of burials may give us some idea of the lay-out and extent of a Roman town and of the direction of the main roads. Isolated burials, however, may represent evasion of the law, and in most cases have little bearing on questions of topography.

In the case of Londinium, the greater number of the Roman and Romano-British burials are found, as might be expected, outside the line of the town wall. Two cemeteries, however, and a number of isolated burials, have been discovered in the town area, and the position of these is of much interest. Of the cemeteries, one was found in 1707 near the junction of Camomile Street and Bishopsgate Street, and therefore close up against the wall. It was of small extent and of early date, and should be regarded, perhaps, as part of the large burying-ground which spread in later times outside the wall at Bishopsgate. The other seems to have occupied a large space within the western salient of the wall and comprises a

considerable number of cremated burials, found on the site of St. Paul's Cathedral and immediately to the north of it, in Warwick Square, Newgate Street and St. Martin's-le-Grand. Cremated burials of the Romano-British period (ashes and calcined bones placed in vessels of pottery or glass) are generally of earlier date than inhumations of the same period, and in view of the known regulations it is probable that the western cemetery belongs to a time before the building of the wall and before the full development of the town. Most of the pottery associated with these burials can be ascribed without hesitation to the latter half of the first century. A group of five skulls in the Museum of the Royal College of Surgeons come from London Wall: the skulls were found at a depth of 22 feet, and must be assigned to the Romano-British period, but there is no record of any associated finds. Another group in the same collection, consisting of seven skulls, was found in Cannon Street, and is clearly of Romano-British date.

Isolated burials have been found in Mark Lane, Fenchurch Street, St. Michael's (Crooked Lane), Lawrence Pountney Lane, Lombard Street, Queen Street, Bow Lane, Bank Station, Coleman Street, Broad Street and London Wall: two others, one in Cannon Street and one at St. Dunstan's Hill, are of doubtful date. In the Museum of the Royal College of Surgeons there is a Romano-British or Roman skull which was found in Bevis Marks, and is said to have been associated with an inscribed stone. There appears to be no record of the inscription, and the stone cannot be traced.

With the exception of the Bow Lane burial (that of an old man with a brass coin firmly held between the teeth) and the Bevis Marks skull, the isolated examples all belong to the cremation period, and would seem to date from the latter half of the first to the first half of the second century.

A large burial ground was discovered about 1576 at Spitalfields, outside the wall, and was seen by the London historian, Stow. In his *Survey*, published in 1598, he gives the following account of the site:

'On the east side of this churchyard [St Mary Spittle] lyeth a field, of old time called Lolesworth, now Spittlefield, which about the year 1576 was broken up for clay to make bricks, in the digging thereof many earthen pots called Urnae were found full of ashes and burnt bones of men, to wit, of the Romans that inhabited here. . . . There hath also been found in the same field divers coffins of stone containing the bones of men. . . . Moreover there were also found the sculs and bones of men without coffins, or rather whose coffins (being of great timber) were consumed. Divers great nayles of iron were there found, such as are used in the wheels of shod carts, being each of them as big as a man's finger, and a quarter of a yard long. I there beheld the bones of a man, lying as I noted, the head North and the feet South, and round about him as thwart his head and along his sides and thwart his feet, such nayles were found. . . . I myself have reserved, among divers of those antiquities there, one urn with ashes and bones, and one pot of white earth very small . . . made in the shape of a hare squatted upon her legs, and between her ears is the mouth of the pot. There hath also been found in the same field divers coffins of stone.'

The cemetery was evidently used over a considerable period (certainly from 50 to 150 A.D.), and seems to have contained burials of every type.

Between Bishopsgate to the east and Finsbury Pavement to the west many burials have been found, and we may assume an extensive burying-ground lying to the north of the town wall and following the line of the northern road from Bishopsgate.

Another large cemetery was situated east of the Minories, in the neighbourhood of Goodman's Fields. To this belong the finds in Mansell Street and the Minories, Haydon Square, and Great and Little Alie Streets. The burials here date from the first to the fourth century. Interesting groups of funerary vessels from this area are in the London and Guildhall Museums.

The Haydon Square sarcophagus, found in 1854 and now in the British Museum, is a well-known example of one of the later methods of inhumation burial (Fig. 26). It is a massive chest of soft oolite, carefully but ineffectively decorated in the heavy, dull manner of the Roman stonecutter, and covered by a roofed lid which was held in position by rough iron clamps. Probably it represents a

stock pattern. In the centre of the front panel is a medallion of a youthful head, flanked by a fluted ornamentation, and at each end of the chest there is a conventional basket of flowers. One face of the gabled lid is decorated, but the back of this, and of the chest itself, is left plain. It seems probable, therefore, that such coffins were sometimes placed against a wall, and in a place where they could be seen. There is no inscription. Within the sarcophagus lay a coffin of lead, with the usual scallop-shell and bead moulding on the lid, containing the skeleton of a boy partly embedded in lime. The lid of the coffin is also exhibited

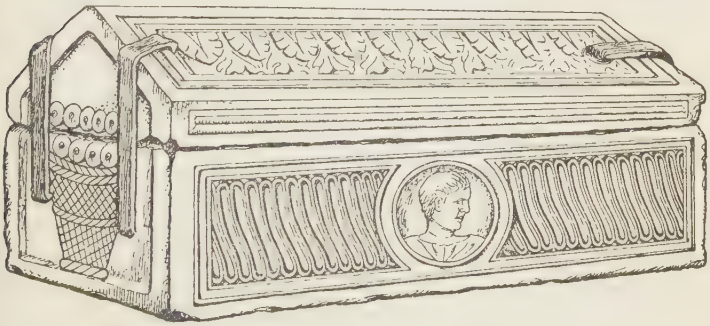


FIG. 26.—STONE SARCOPHAGUS, MINORIES, LONDON

in the British Museum. There is nothing which enables us to give an exact date to the burial, but it probably belongs to the late third century.

Outside the wall on the west side we find another area containing burials, in the neighbourhood of Smithfield; and here again, as at Bishopsgate, the line of the main road (entering the town at Newgate) is indicated by numerous graves. On the evidence of the burials, the cemetery would appear to have been in use from the first to the end of the third century. During the excavations for the medical school at St. Bartholomew's Hospital in 1877, two stone coffins were found close together at a depth of about 11 feet below the surface and lying approximately east-west. In one of these was a leaden coffin

with the skeleton of a woman ; and in the other were the skeletons of a man and a woman, the head of the man at the west end and that of the woman at the east end. The male bones were those of a person of very powerful build and about 50 years of age ; the woman was considerably younger. Both coffins may now be seen on the staircase of the hospital library.

Other burials have been found at some distance from the walls of Londinium. Those in Shadwell and Stepney are regarded by a writer in the Royal Commission's Inventory as possibly representing an extension of the Goodman's Fields cemetery, and this is highly probable. At Old Ford and Bow, a number of graves mark the course of the road to Colchester. Two stone coffins were found in Morville Street in 1867. One was of oolitic stone, rounded at one end (not a common feature), and containing a female skeleton. By the ankle bones was ' a small cup of the black glazed pottery of the Northamptonshire make '.[1] The body had been covered with lime ; a frequent practice in the case of London burials of this type, but by no means universal in Roman Britain. In the other coffin, which was 7 feet 2 inches long by 2 feet 4 inches wide, were the skeletons of two men and a woman ' in perfect order '. Two of the skeletons (male and female) lay side by side, and the other had been placed between them. It seemed clear, from the position of the bones, that the latter was placed in the coffin some time after the burial of the two others, who had been deranged in order to make room for him.

Stone coffins have been unearthed at different times in Upper and Lower Clapton. The most interesting of these is the white marble sarcophagus which was found in 1867 at the back of the London Orphan Asylum at Lower Clapton, now in the Guildhall crypt. The form and decoration at once invite comparison with the coffin from Haydon Square. It has a central medallion with a portrait bust, ornamented on each side by vertical flutings, and the lid (which was missing) had been fastened with

[1] *Trans. Lond. and Msx. Arch. Soc.*, III, p. 206.

metal clamps. Inside were much-decayed bones, described as those of a tall male. Below the medallion is an inscription, of which the only portion now legible may be translated as ' to his dearest . . . for her merits '—which, if the skeleton was that of a male, is not easy to explain.

Two skulls of Roman date in the Museum of the Royal College of Surgeons are described as having been found in Kent Street, Shoreditch, at a depth of 16 feet. There are no further particulars, but the position would suggest a burial-ground at no great distance to the east of the northern highway, and about a mile and a half outside the town wall.

Along the line of the western road, cremations have been discovered in Holborn, Gray's Inn Road, Southampton Row, Oxford Street and Regent Street (Quadrant Arcade) ; and a group of inhumation burials was found at Notting Hill in 1841.

In 1927 a cremation cemetery, all the urns from which are now in the London Museum, was found in Shoe Lane, Fleet Street. Three other urn burials are recorded from the site of Charing Cross Hospital, the church of St. Martin-in-the-Fields, and Cockspur Street.

Finally, we must note the remarkably fine stone sarcophagus discovered in 1869 in the Green on the north side of Westminster Abbey, and now preserved in the vestibule of the Chapter House. Although the sarcophagus is Roman, the cross which has been carved in relief upon the cover is generally assumed to be of Saxon date, and it is possible, therefore, that the coffin may have been brought to Westminster from some other place in Saxon times, or at any rate shifted from its original position in order to accommodate a Saxon burial. The chest and cover are made of Oxfordshire oolite ; the front bears an inscription, admirably cut in fine lettering, between two stylized Amazon shields. The inscription is thus translated : ' In memory of Valerius Amandinus, made by Valerius Superventor and Valerius Marcellus for their father '. Superventor is a term which has been much discussed, but is clearly of military origin. Dean Stanley

directed the opening of the sarcophagus, assisted, with a solemnity which was almost ritualistic, by the Canons, Sir Gilbert Scott, and Mr. (afterwards Sir Wollaston) Franks. They found within it the bones of a complete skeleton which appeared to have been turned over on its face, and the skull was placed by the feet at the lower end of the coffin. This extraordinary circumstance points to the unseemly derangement of the skeleton at some date subsequent to its burial rather than to the decapitation of the body. They also found a few pieces of brick, a slag-like substance, and some lumps of pasty material which resembled quicklime. The skeleton was afterwards examined by Thurnam and Huxley, and pronounced to be that of a muscular young man about 30 years of age, of medium stature, with a small head and narrow brows. It seems improbable, in view of this, that the remains were those of Valerius Amandinus, and everything points to the disturbance of the first burial and the substitution of one of later date, and probably that of a Saxon. At the same time, we may draw attention to a very ingenious and learned paper by the Rev. J. G. Joyce,[1] who assigned the coffin to the time of Theodosius, and endeavoured to prove that the lid, cross, inscription and burial were all contemporary.

It will be seen, from this brief review, that the funeral customs of Roman London varied considerably. Up to 150, cremation was almost universal. Inhumation, probably an aristocratic privilege in its earlier forms, gradually overcame the more ancient practice, which, it may be noted, was at variance with the teachings of primitive Christianity.

Cremation burials generally consist of a group of vessels, of glass or pottery, sometimes protected by bricks or tiles or wooden boards, and sometimes placed inside a large earthenware jar, the top of which is broken off for the purpose. Occasionally the cinerary urns or vases were placed inside decorated lead canisters of cylindrical form. A fine burial group from Warwick Square, with decorated

[1] *Arch. Journ.*, XXVIII, p. 257.

canisters, a handsome glass vessel and a splendid vase of close-grained igneous rock (serpentine) is to be seen in the British Museum (Fig. 27). The larger vessels are often accompanied by small phials for unguents, in glass or pottery, and by glass bottles which have been observed to contain oily substances.

The sculptured gravestones and memorial tablets which have been found in London at various times cannot be

FIG. 27.—GLASS CINERARY URN AND LEAD CANISTER, WARWICK SQUARE, LONDON

associated with definite burials, nor is their original place and purpose always certain. One with a Greek inscription in the London Museum, found at Drury Lane, is said to have come from Smyrna. The history of such things is often extremely confusing: an inscribed tombstone, known to have been seen in Athens in the seventeenth century, was dug up from a depth of 15 feet in New Bond Street in the nineteenth.

Good examples of commemorative sculptures are to be

seen in the British, London and Guildhall Museums; but one of the best known—that of the legionary soldier Vivius Marcianus—is in the Ashmolean at Oxford. Fragments of a large monument were found in 1852 outside the wall at Trinity House Square, and are now in the British Museum. These lay in the midst of what has been described as 'a veritable quarry' of similar, but smaller, fragments; obviously a mass of re-used material and perhaps the relics of a despoiled cemetery. They consist of a massive stone scroll or bolster 61 inches long, and part of an inscribed slab 64 inches long. The inscription commemorates a retired naval officer, Fabius Alpinus Classicianus, and in addition to the name has merely the usual dedication, '*Dis Manibus*'—'to the shades of'. The cognomen Classicianus may be translated as 'formerly of the fleet'. The lettering is well cut, though, if Professor Lethaby's restoration is correct, it was not properly centred on the stone; but perhaps other letters may have preceded the abbreviation FAB.

The works of sculpture and the examples of bronze casting found in London are seldom of real excellence, and cannot be compared with the fine specimens found in the provincial towns or on the sites of elegant villas. But there are a few exceptions. The beautiful fragment of a river-god from the Walbrook, now in the London Museum, though purely Greek in handling and sentiment, is certainly a proof of culture, or at least of the desire to possess works of art, in Londinium (Frontispiece). It is carved in white marble, on a scale smaller than that properly demanded by the treatment. The head and hair are broadly and simply modelled in forms typical of Hellenic art, and the face has a calm and gracious dignity which would become Zeus himself.

Religious cults are represented by an interesting Mithraic slab in the London Museum, and by sculptured fragments of the Deae Matres or Mother Goddesses in the British and Guildhall Museums, as well as by numerous little figures of Venus in pipeclay, sometimes placed within decorated shrines. The Deae Matres are shown conven-

tionally as three seated women with baskets of fruit and flowers in their laps ; they are probably Celtic divinities in a Romanized form, and embody the powers of kindly abundance. Two mutilated clay statuettes of single mother goddesses, from Copthall Street and Austin Friars respectively, and now in the London Museum, should also be noted.

The fragments of sculpture which have been found in the filling of the bastions are all coarsely executed, and the best that can be said of them is that some bear witness to a considerable degree of mere industry and are competent pieces of hackwork. Early engravings of these fragments (for example, that of the soldier from the Camomile Street bastion published by Price in 1880) give too favourable an impression of their qualities. There is a certain grace and harmony of arrangement in the altar of Diana which is now preserved in the Goldsmiths' Hall, but that can hardly be said of any of the other sculptured stones of Roman date found in London.

None of the architectural fragments of Londinium is at all impressive : the moulding of such fragments is coarse, and the decoration entirely devoid of artistic worth. It should be noted, that the large granite base of a column in the Guildhall (weighing over 5 tons) must not be accepted too readily as proof of the existence in Londinium of a correspondingly large mass of architecture, neither can it be confidently ascribed to the Roman period. The stone has been identified by Dr. H. H. Thomas of the Geological Survey as an Egyptian granite, and it seems unlikely that such massive materials were brought by the Romans from such a distance for the aggrandisement of a commercial town. Moreover, if any proportionately large building with a massive portico existed in Roman London, it is unlikely that this base should be the one surviving relic. Imaginary reconstructions founded upon such evidence clearly belong to the domain of fable rather than to that of science.

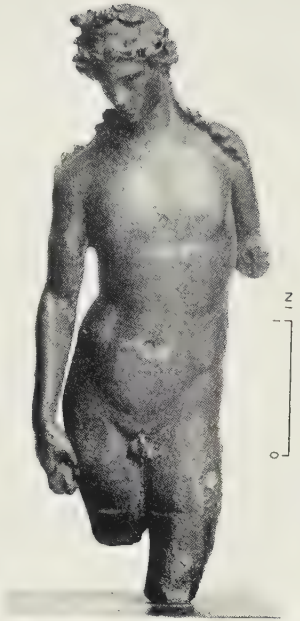
Apart from the Walbrook god, there are no works of art of a high order belonging to Roman London with the

exception of a few bronzes. The bronze colossal head of the Emperor Hadrian in the British Museum, found in the Thames in 1834 during work on the new London Bridge, is one of the best-known antiquities of the Romano-British period (Pl. VIII). This is a fine piece of casting, and quite unmistakable as a portrait. The face has a redundant masculine vigour, a calm, soldier-like determination and a lack of subtlety and of high intelligence, thoroughly typical of Hadrian. How the head came to be separated from the rest of the statue and buried in the Thames mud we cannot say. It has been suggested that the left arm and hand of bronze, found in Gracechurch Street and now in the Guildhall Museum, and the bronze right hand from Lower Thames Street, in the British Museum, may also have been parts of the statue of Hadrian. A bronze arm of heroic size, badly corroded, was discovered in 1884 at Seething Lane, Great Tower Street, during work on the Inner Circle Railway, and is now in the Guildhall. The foot of a life-size bronze statue, found in the Kingsway, is in the British Museum. It seems clear that in all these cases, and in others, we have evidence of the intentional destruction of large statues.

In 1837, a group of four mutilated bronze statuettes came from the river near the foundations of the old London Bridge. These are now considered to represent Jupiter, Apollo, Mercury and Ganymede, but the latter was described by Roach Smith as ' a priest or devotee of Cybele '. The Apollo (Pl. VII), of which the head, torso and right arm are complete, is an exquisitely graceful little figure ; the legs have been sliced off by an instrument with a sharp blade, of which there are still traces on the thighs. Mention may also be made of a delightful little model of a goat (described by Roach Smith as of ' iron cased in silver '), and the figure of a shaggy-haired ' barbarian ' (no doubt intended for a British aborigine), both found in the Thames during work on the site of the bridge. These bronzes, with others from the Thames, are in the British Museum.

The most admirable of the smaller bronzes is the figure

BRONZE FIGURE OF AN ARCHER
(ABOUT 14 IN. HIGH) *British Museum*



BRONZE STATUETTE OF APOLLO
British Museum

of an archer (Pl. VII) found in Queen Street in 1842 by Mr. W. Chaffers (British Museum). The archer has drawn back the bowstring and is bending forward, ready to watch the flight of his arrow. The poise of the body is wonderfully expressive, alert and vigorous, conceived and realized with the true vision of an artist. An inlay of silver gave a somewhat obvious but striking effect to the eyes. A little silver figure of Harpocrates, with a gold chain wound round his body, a ring at his back, and a bird, tortoise and dog at his feet (found in the Thames at Old London Bridge) is worthy of special mention. The young god is shown raising his finger to his lips, as though to emphasize the golden virtue of silence—a gesture typical of his original form as the Egyptian Horus. In his Greco-Roman form, as here represented, he has the attributes and the juvenility of Cupid. Like the others we have selected, this statuette is in the British Museum.

Of the various figures and masks in terra-cotta which have been found in London, few have any artistic merit. An exception is provided by the graceful fragment of a terra-cotta figure, probably of Demeter or Ceres, found in Liverpool Street in 1872 and now exhibited in the Guildhall Collection. The right hand, which is raised to the level of the bosom, holds three apples. The treatment of the drapery, though formal, is pleasing; and the figure has both dignity and charm. The fragment is slightly over 13 inches in height.

The most common relics of Londinium are pots and pottery vessels, or pieces of them, of all sorts and sizes.

Of these, the best finished and most handsomely decorated are made of what is known as Samian ware; but it must be stated that the term Samian is entirely misleading, and is based on the mistaken idea that this type of pottery either originated in the island of Samos or was made of Samian clay. The term 'red ware', if used with a definite connotation, would certainly be preferable; but 'Samian' has passed into current usage, and is employed consistently both in archaeological and in popular works. An alternative designation, *terra sigillata*, meaning figured

or decorated ware, is both inadequate and cumbersome. We retain the word Samian in the present volume, on account of its accepted meaning.

Early forms of red ware (Arretine) came from Arezzo in Tuscany ; later, the true Samian was produced by the Gaulish potters of La Graufesenque (Aveyron) and other parts of Southern Gaul, and later still at Lezoux (Puy-de-Dome) and elsewhere. It was also made in Germany. The output of the Gaulish factories had declined by the middle of the third century, and ceased altogether by the end of it.

An immense number of the commoner sorts of jugs and handled flagons, urns, dishes and mortars (*mortaria*) have been found in London. The great mass of this pottery obviously dates from the time of the Claudian conquest onward, but there are some pieces of dark Belgic pottery, a few examples of Arretine, and certain early Gaulish or ' provincial ' wares which belong to the pre-Claudian period.

The distribution of the early provincial Samian wares, which have been found on both sides of the Walbrook, would seem to indicate that a considerable part of the area subsequently enclosed by the town wall was occupied before the disaster of A.D. 61. A very interesting Arretine platter of pre-Claudian and possibly of Tiberian date has recently been found in Basinghall Street and has been acquired by the British Museum. No other piece of this date has been recorded in the neighbourhood of Basinghall Street, and the find is therefore of special importance. The potter's name, stamped *in planta pedis*—that is, from a die shaped like the sole of a foot—is not distinct, and so far has not been conclusively deciphered.[1] We have already referred to the other pieces of Arretine ware which have been collected from various parts of the City (p. 180). But it should be noted, that the greater number of the finds of early Italic (pre-Claudian) wares have been made in Southwark, across the river, and not within the walls of Londinium. Numbers of pots with ' pedestal ' bases, which were at one time confidently ascribed to the ' Late

[1] *Antiq. Journ.* X, (1930), p. 55,

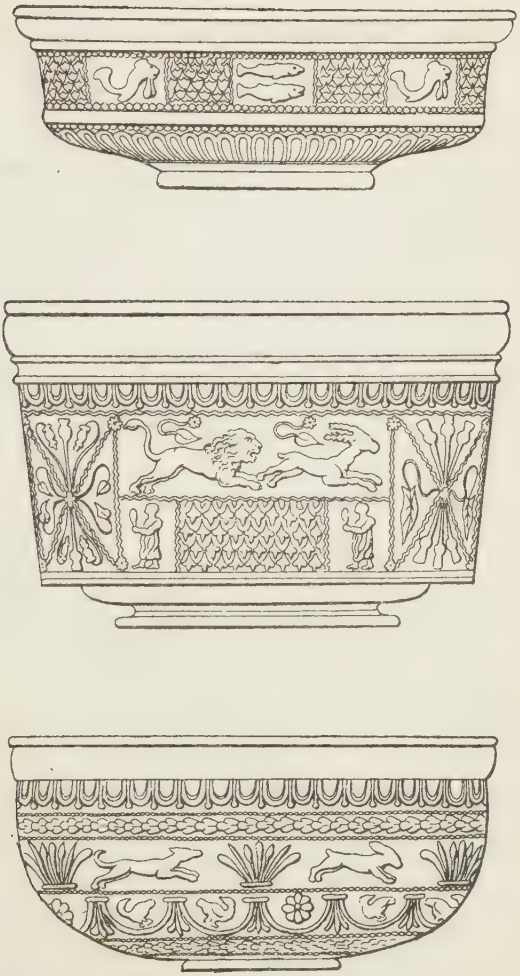


FIG. 28.—DECORATED SAMIAN WARE FROM LONDON

Celtic ' (La Tène III) period, are now considered Romano-British ; and although the finish of these pots would seem in most cases to imply a Roman origin, it may be that the present wholesale ascription of such wares to the Roman period is too indiscriminate. On the other hand, we have to admit the possibility of the survival of earlier, and perhaps native, forms during the early days of the Roman occupation. The coarser wares of early type may be seen in most collections, notably at the Guildhall, and the London Museum has a number of Arretine and early Samian fragments.

The Samian wares of Londinium are chiefly of Gaulish origin, the factories of La Graufesenque and Lezoux being represented by a very large number of pieces. The characteristic of Samian ware is a fine, hard, brilliant red glaze, obtained by a process of which we have no knowledge. Bowls and shallow dishes or platters are perhaps the most frequent forms. The names of the potters, often stamped on the bases of these vessels, are of great value as a means of determining, not only the date of the vessels themselves, but also that of the objects which are found with them.

Many fine examples of Lezoux pottery are to be seen in the British Museum, several of them noteworthy for a realistic and often highly effective treatment of the human figure in their decoration. La Graufesenque is also well represented in the Museum, and the collection includes a piece of that ware from the Thames which was mended by means of rivets in Roman times. Here also we may note a large Lezoux vase from Cornhill, a handsome bowl from Billingsgate, others from Cheapside and London Wall, and a particularly fine specimen with a hunting scene, found near St. Mildred's Church, Poultry. Other good specimens of Samian wares are exhibited in the Guildhall and London Museums. The greater part of the Chaffers Collection, which contains some rare types, is now stored in the Victoria and Albert Museum, South Kensington. Some interesting pieces of early Samian ware, collected by Mr. J. E. Price, are in the museum of the Society of Antiquaries.

Distinctive pottery of native origin was made in the Romano-British kilns at Castor (Durobrivae) near Peterborough. The Castor pots are characterized by hunting scenes or scroll-work, applied to the surface in a semi-liquid form by the *barbotine* method. Examples from London are not very common, but there are several in the Guildhall, and others in the British and London Museums. Black Upchurch wares from the Medway and

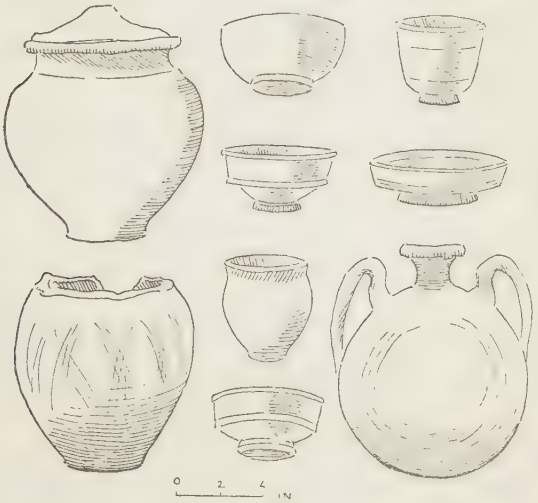


FIG. 29.—TYPES OF ROMAN POTTERY FROM LONDON
Guildhall Museum

the coarse pottery from the New Forest kilns are also uncommon among the London relics, though by no means unrepresented.

We cannot here describe the great variety of earthenware vessels which were made for domestic or commercial use. In size, they range from tall amphorae (deep jars of tapering form with two handles, sometimes 3 feet or so in height) and large full-bellied pots, to little cups and dishes only a few inches in diameter. The flagon of buff ware, with one handle, is a common type; and so is the

plain black bowl. An exceptional form may be noted: the so-called 'flower-vase', which consists of two, three or four little pots made together and united at the base. A good example—three long vases and one very short one, conjoined by a hollow circular base—was recently acquired by the Guildhall Museum. Minute pots, the use of which is unknown, have been found in Billiter Street, Token-house Yard, and on the site of Liverpool Street Station.

Lamps were also made of pottery (more rarely of metal), often with graceful decorations in their cups. The best collection of these lamps, from London sites, is in the Guildhall Museum. In the British Museum there is the upper part of a pottery lamp in the shape of a gladiator's helmet, of reddish ware, the rim blackened by use.

A certain number of Roman glass vessels have been found in London, but these are naturally much less frequent than vessels in other materials. The funerary urn, found inside one of the lead canisters at Warwick Square, and already mentioned, is a fine example of the skill of the Roman glass-makers, and the beautiful iridescence or 'patina' resulting from the superficial decomposition of the surface gives it a very striking effect. Within the urn is a mass of burnt human bones. There are other specimens of glass ware from the City in the British Museum, and we may note, in particular, a graceful glass vase from Newgate Street. In the Guildhall there are two good examples of glass cinerary vessels: one of the usual type in dark green glass, from the Minories; and another with double handles and a wide mouth from All Hallows, Barking.

The small glass phials, at one time wrongly described as lachrymatories or tear-vessels, of which many have been found in London, are supposed to have contained unguents or cosmetics, and occasionally form part of the grave-furniture in cremated group-burials. Square bottles with flat handles and short necks, often associated with burials and containing the ashes of the dead, occur frequently. A rarer form is the long-necked globular vessel (rather like a decanter)—a singularly graceful example of this type, from Bishopsgate Street, is in the Guildhall Museum.

Fragments of moulded glass in blue and green, with masks or other decorations, are usually the remains of jug-handles ; but the skill of Roman glass-work in colours is not worthily represented by any piece from London,[1] though we may note a blue bowl of pillar-moulded glass, from Fenchurch Street, in the Guildhall Collection.

Vessels of metal are somewhat rare. In the British Museum may be seen a small dish and a flagon of impure silver from Gracechurch Street, found in 1909 at a depth of about 13 feet. The London Museum has a fine handled jug of thin yellow bronze and a ' cook-pot ' of the same metal, both from the bottom of a Roman well in Cornhill. Another jug of flagon type in the same collection, found in Threadneedle Street, has a mask at the lower attachment of the handle. There are also a few small bronze bowls at the Guildhall.

The comparative scarcity of Roman weapons and military equipment in the London area, at first sight rather surprising, is to be accounted for by the fact that the town was never a place of military importance under the Roman rule. After the establishment of the Romans in Britain, the military elements in London would have consisted mainly of time-expired men, retired officers, veterans, convalescents, and troops passing through on their way to or from the Province. It must be remembered that, although many of the funeral inscriptions found in the town are those cut for legionary soldiers, both officers and men, no legion was ever quartered in London. On the other hand, the instruments and appliances of a peaceful and civilized life have been found in prodigious quantities. (The sword and embossed sheath which we reproduce (Fig. 32) are not London relics in the true sense, for they were found in the Thames between Fulham and Putney, together with an iron dagger. A collection of arrow-heads and spear-heads, perhaps not all of Roman date, is in the Guildhall Museum. The bronze boss of a shield, found in Copthall Court and now in the London Museum, may also be noted.

[1] See Roach Smith, *Illus. Rom. Lond.*, Pls. XXXI and XXXII.

Many of the smaller metal instruments which come from the site of Londinium are presumably connected with the toilet, but the precise use of these is generally problematical. An extremely common type is represented by the *ligula* (Fig. 30)—a slender instrument, usually in bronze, from 5 to 7 inches long, with a smooth bulbous termination at one end and a narrow spoon at the other. This is supposed to have been used for extracting cosmetics from the

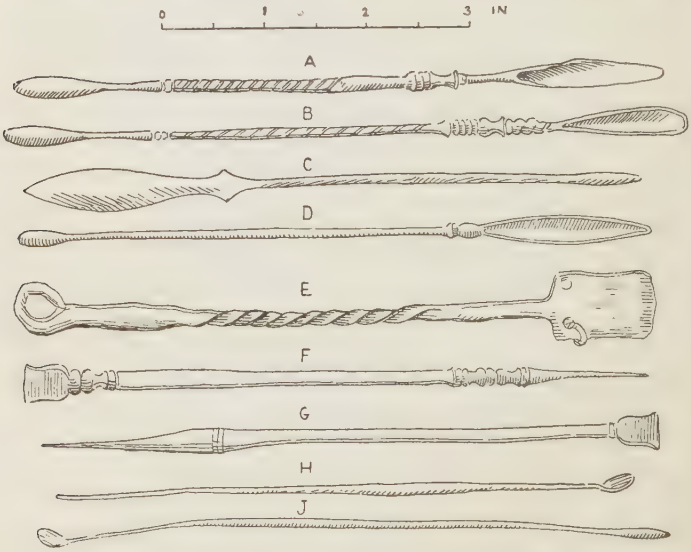


FIG. 30.—SMALL METAL OBJECTS FROM LONDON
A, B, C, D, Ligulae; E, So-called 'Rattle'; F, G, Styli; H, J, 'Ear-Picks'
British and Guildhall Museums

little bottles or phials which contained them, but it has also been suggested that it was meant for the extraction of condiments or pickles or for the preparation of artist's colours. It may very well have served for any of these purposes, or for others of a like sort which will occur readily to the imagination; but we cannot thus account for other delicate instruments with curiously pointed or spatulate ends: to describe them as surgical instruments

is, of course, an easy and obvious way out of the difficulty. Others, with a small flat or slightly concave rounded end, are termed ' ear-picks ' (Fig. 30). Sets of ear-pick, tweezers and nail-cleaner (or tooth-pick), joined together by a ring or swivel for suspension from the girdle, are exhibited in the Guildhall Museum.

A common type of small instrument, but in this case of known use, is the *stylus*, for writing on boards or tablets coated with wax. Some of the styli are of extremely fine workmanship, whether in bronze or iron : one end is tapered down to the point, and the other has a smooth broad terminal for making erasures and for preparing the surface of the tablet. Writing-tablets of wood, sometimes hinged together like the leaves of a book, will be found in the principal collections of London antiquities : they were probably used for notes, exercises, accounts and other temporary purposes. Occasionally these were made of polished bone. In addition to the styli proper, there are pens of the ordinary kind, for writing with ink, sometimes with points which closely resemble the modern pen-nib ; but these are extremely scarce in London collections. Ink-pots of bronze and of earthenware can be seen in the Guildhall.

Tools and objects of iron, not always of known use, are fairly numerous. The most puzzling of these is the object described as the ' hippo-sandal ' : a hideous term which is only too characteristic of archaeological methods in word-making. It consists of an iron plate, roughly shoe-like in form, with hooks, loops or flanges for attachment. The term implies use as a horseshoe, but the object seems ill contrived for such a purpose, and the Roman horseshoe was of the modern type. It is more suggestive of a kind of stirrup. But hippo-sandals have been found, though not in this country, with the skeletons of horses. The narrow types, however, sometimes assumed to have been the runners of sledges, cannot possibly be associated with horse equipment. There is a collection of some fifteen of these objects, representing all types, in the Guildhall.

Iron tools, found in many parts of London, include axes,

chisels, drills, gouges, files, pincers, punches and reamers. Knives with curved iron blades and decorated bone handles are fairly common.

Keys are numerous. The locks for which they were made are of three kinds: the tumbler type, in which a toothed key pushes up the pins which engage the sliding bolt; the plain lever type; and the barrel or spring padlock type. Specimens of the locks themselves are rare, but keys belonging to all types have been found in London.

Those who wish to study the smaller miscellaneous objects of metal which can be ascribed to Roman London will find them in all the principal collections. We cannot deal with them here, but we may note the excellent fish-hooks (some of them double), which would be as serviceable to-day as when they were made for the Roman anglers.

Civilian dress in the Romano-British period was comparatively plain, and personal ornaments few and simple. Profuse and massive decoration, with insistence on display rather than on practical use, is a proof of barbarism; and it must be remembered that the Roman civilization, however lacking in artistic resource, and however gross it may have been in many of its aspects, was of a relatively high order.

The native British art of enamelling was somewhat neglected in the Romano-British period, and the survival of Celtic patterns is only to be noted in a few rare examples. A few enamelled brooches may be seen in our public collections; but the most important piece of Romano-British enamelled work is the plaque from the Thames, which must be described later.

The fibula or safety-pin, one of the most ancient forms of metal dress-fastening (sometimes described as a brooch), was largely used in Roman times. The London specimens, however, are not very numerous, nor do they include many remarkable types. In the British Museum there is a pretty enamelled specimen with a piece of twisted wire attached to the ring at one end, and there are traces of enamel on a fibula from Tokenhouse Yard in the Guildhall. The ring brooch is less common than the safety-pin, and the solid

round or oblong form with raised centre, known as the ' buckler brooch ', is rarer still : an example of the latter, from Fenchurch Street, is in the British Museum. In the London Museum there is an extremely interesting series of fibulae and enamelled brooches.

Bangles, bracelets and finger-rings have been found in various places on the site of Londinium and in its neighbourhood, but the circumstances of such finds are seldom accurately recorded. The practice of burying their personal decorations with the dead, a practice essentially primitive and looked upon with horror by the Christian Church, was not usual in Romano-British times, and no large find of such decorations has been made within the London area. One of the few instances of this practice was afforded by the burial of a child in an oak coffin at Moorfields, which contained two jet bracelets of small size, a glass bead, and a gold coin of Salonina (British Museum). Bracelets are frequently made of wire, sometimes of two metals twisted together, of bronze or iron with loop and hook terminals, and the heavier kind are of solid bronze with simple decoration ; bracelets of precious metal or of stone are extremely rare. A chain-bracelet of bronze with an equal-armed cross, possibly intended for the Christian symbol, is in the national collection. The finger-ring was a customary Roman ornament, worn by people of all ranks and made in many forms, cheap and plain, ornate and costly, but London provides few examples. A good representative series of these is shown in the London Museum. The British Museum has two fine gold finger-rings from the Thames ; one with a garnet, and the other of the massive sort which is described as a ' thumb-ring '. In the Guildhall there is a remarkable gold ring, apparently made for a child, or perhaps for a small woman, with a phallic emblem on the bezel ; it was found in Token-house Yard. The common type of ring is made of bronze or iron, occasionally set with paste, stones or glass. Rings with intaglios or seals are not common.

The jewellery found in Roman London does not compare, either in richness or variety, with examples found

elsewhere in the Province ; and this, in view of the love of ostentation which is always present in mercantile societies, is a rather surprising fact.

Among the objects associated with dress and the toilet, pins and bodkins are the most numerous. These are of metal or bone, and many of them are examples of skill and elegance. A long bone pin in the Guildhall Collection has a delicately carved head which is supposed, perhaps with insufficient reason, to be a portrait of Hadrian's wife, the Empress Sabina. (We think it probable, having regard to the finding of other and similar examples, that it represents a stock pattern or device.) In the same collection are two metal pins with figures of animals. The fine series of bronze pins collected by Roach Smith is in the British Museum, where also is a particularly ornate specimen from the Mansion House.

Mirrors are extremely rare. The most interesting London examples—of white bronze, intentionally broken—come from a Roman cemetery discovered near the New Kent Road in Southwark, and therefore outside our area. A bronze mirror from Whitechapel (probably found on the site of a cemetery) is in the Guildhall Museum.

Of the bone and boxwood combs found in London and ascribed to the Roman period, some are probably of Saxon date.

Roman shoes, boots and sandals of leather have been preserved in astonishing numbers ; though here again it is probable that some of the leather fragments assumed to be Roman are of much later date. Be that as it may, the examples which are definitely of the Romano-British period are of much interest. Attention may be drawn to the series in the Guildhall Collection, and particularly to the complete sandal, the nearly complete laced boot or buskin, and the shoe with reticulated open-work sides (a remarkably elegant production) from Queen Victoria Street. Here also is the sole of a boot with a design in stout hobnails, and we may note the gracefully pointed toe. The care and skill with which such footwear was made in Londinium are shown by a good example of a shoe in the

same series: the uppers are neatly sewn, the edges are scalloped, with lunate openings for the laces, the sole has four thicknesses of excellent leather, fastened by two outer and three inner rows of nails. It is not probable that our modern boots and shoes, in which leather is largely replaced by synthetic pulpy substances, will be, or can be, preserved for sixteen hundred years, as many of these Romano-British examples undoubtedly have been.

We cannot, in the space allotted for this chapter, discuss fully all the miscellaneous objects of Roman date which have been found in London. It is our aim rather to give a general idea of the archaeology of the place and period than to describe things which may be studied at leisure in the great public museums. But there are certain objects, which, by virtue of their peculiar interest and rarity, cannot be omitted from these pages.

One of the most peculiar of these exceptional objects is the decorated bronze forceps or 'ceremonial clamp', found in the Thames near London Bridge in 1840, and now in the British Museum. The forceps is about $11\frac{1}{2}$ inches long, and consists of two shanks, originally hinged together, with inner edges deeply serrated. At the curved ends of the clamp are two horses' heads, and set above these are two little busts, representing Juno (or Atys) and Cybele. On the outer edge of each of the shanks are four other busts, and beneath them the head of a bull. On the one side we have Mars, Diana, Apollo and Saturn; and on the other, Mercury, Jupiter, Venus and Ceres. These are the divinities presiding over the eight days of the Roman week. (It has been suggested that Ceres was added for the sake of balance, but we prefer the view expressed in the British Museum *Guide to Roman Britain*, to the effect that Ceres represents 'the eighth day of the Romans'. At the same time, we should note that the seven planetary deities had a recognized position in the cult of Mithras—a cult which was certainly to be reckoned with among the religions of the Romano-British period.) The lower terminals of the forceps are decorated with lion's heads. About 1 inch above these terminals are two holes, perhaps

for the insertion of a metal rod. This curious instrument unquestionably served a ritualistic purpose, and Mr. A. G. Francis has suggested that it was used in the rites of Cybele.[1] Its exact use cannot be proved, but we may be sure that it was never intended (as some have supposed) for a pair of nutcrackers. One of the shanks was evidently broken in use, and repaired with considerable skill.

Objects affording proof of Christian influences in Roman Britain are rare, and few have been found within our district. It seems evident that Christianity was never very firmly established among the fashionable creeds of Roman Britain, although three British bishops (including one from Londinium) were present at the Council of Arles in 314, and the so-called Martyrology of St. Jerome mentions a bishop of London whose martyrdom appears to have taken place towards the end of the Romano-British period. Eight pewter ingots found in the Thames between Battersea and Wandsworth, now in the British Museum, were stamped with the mark of one Syagrius, who used as his device the Chi-Ro monogram with the motto *Spes in Deo* (Hope in God) or the Alpha and Omega. The Chi-Ro is a well-known early Christian symbol, formed by the first two letters of the name of Christ in Greek. According to Mr. Reginald Smith ' it is possible to assign the ingots to the fourth century ; and it should be mentioned that one Afranius Syagrius was secretary to the Emperor Valentinian in 369 and consul in 382 '.[2] A remarkably interesting flat cake of lead in the Layton Collection at Brentford, found in the river at Battersea, is impressed in several places with the stamp of Syagrius, bearing the Christian device and *Spes in Deo*. The Chi-Ro also appears, rudely scratched, on the base of a silver cup found in Copthall Court and now in the London Museum. We have already mentioned a chain-bracelet in the national collection with an equal-armed cross—possibly a Christian symbol. A pin in the same collection has a disc upon which is a representation of what is assumed to be Constantine's vision of

[1] *Proc. Roy. Soc. Med.*, XIX, p. 95.
[2] *Brit. Mus. Guide to Rom. Brit.*, p. 32.

the Cross: a purely fanciful conjecture, and it is more than probable that the pin is of Saxon date.

The interesting enamelled bronze plaque from the Thames (British Museum) is probably another ritualistic object. It is 7 inches high, and is cut in the shape of an altar. The decoration of the plaque is unusual and does not conform strictly to any particular style. The main design was executed in blue and red enamel on a ground of pale green: above and below the gabled panel in the centre are lions and gryphons flanking a vase—the animals in pale green and the vases dark blue. From the fact that the edges are left in a rough, untrimmed condition, it may be inferred that the plaque was meant to be fixed as part of a larger decorative scheme, or as an ornamental fitting of some kind. It is not in a good state of preservation.

Among other enamels of this period, we would draw attention to a bronze figure of a cock, with the tail (which may have been of real feathers) and the feet missing. The body of the bird is decorated with sunk enamel (*champlevé*) in green and yellow to represent plumage: it was found near the Royal Exchange and is now in the British Museum. We may also note one of those curious little enamelled bronze models of four-legged stools or tables, just over an inch high, in the Guildhall, and another, from Finsbury Circus, in the London Museum. These models have been found elsewhere in Britain. They have usually a circular hole in the top, but we are ignorant of their use or intention.

One, at least, of those mysterious things known as dodecahedra has been found in London. The dodecahedron is a small object of unknown use. It is a hollow polygon of bronze, having, as the name indicates, twelve faces. Each face has a relatively wide circular hole, and at each of the angles are small knobs. The holes are invariably of different sizes. Speculation may (and does) run wild over things of this kind, but it is quite impossible to prove their purpose by mere deduction. The solitary specimen mentioned above has been recently acquired by the London Museum. It has prominent bulbous knobs,

and the variation in the size of the holes is strongly marked.

An object which is probably unique is the miniature prow of a galley in bronze, about 3 inches long, found in London (locality not recorded) and now in the British Museum. An inlaid inscription cut in reverse on the port side of the bow reads AMMILLA AVG FELIX. It is assumed that Ammilla was the name of the galley thus commemorated. AVG is probably an abbreviation of Augusta, and possibly marks the ship as one of the imperial fleet; and FELIX may refer to the part played by her in some victory or other maritime achievement. The stem is surmounted by the head of a swan with neck sharply curved; below this, and projecting well in front of the bows, is the ram, modelled to represent the head of a dog, or perhaps a lion. In some descriptions, mention is made of a palm-branch below the lettering, but this cannot be clearly traced. Whatever its purpose may have been, the bronze is remarkably interesting as an example of naval design; and we may suppose that the model was made to commemorate a famous galley, and that replicas were presented to her officers and men.

Another object which may be unique as far as London is concerned is the so-called 'London curse', exhibited at University College in February 1929 by Mr. G. F. Lawrence and now in the London Museum.[1] It is a small sheet of lead, of irregular outline, slightly damaged by fire, with an inscription cut on both sides, recording the cursing or 'undoing' of two individuals, T. Egnatius Tyrannus and P. Cicereius Felix. Possibly it was placed in the household shrine of the ill-wisher—it could hardly have been publicly displayed in a temple. No crime is specified, and the curse consists merely of the words *defictus est.* The 'curse' was found in Prince's Street.

Of the few casual inscriptions made, like the above, for some purely personal reason, we may note the amusing piece of information scratched on a tile found in Warwick Lane. The tile measures 17 by 12 inches, and on this,

[1] *Journal of Roman Studies,* XVIII, p. 213.

while it was still wet, some one (presumably a Roman tile-maker) has written in somewhat illiterate Latin to the effect that 'Austalis has been wandering off on his own for these past thirteen days'. The words have been scratched on the moist surface by means of a pointed stick, and there is a flourish by the side of them. Austalis is presumably intended for Augustalis—no doubt the name of some defaulting workman. This artless *graffito* certainly provides us with what the journalist calls the 'human touch', and the lazy Austalis, who dodged his foreman so effectively, is thus commemorated as surely as men more worthy or more illustrious whose names are cut on funeral monuments. The tile is in the Guildhall Museum.

Wooden relics of the Roman period, apart from piles and timbers used in constructions, are somewhat scarce. The stamped barrel-staves which have been found at different times on the site of the old General Post Office and beneath the Bank of England are therefore of some interest. These are stamped with the same mark—T. C. PACA+(read as T. C. PACATI)—which is probably that of a merchant or cooper. The staves at the Bank of England had been used for the lining of a well. Specimens of these marked staves may be seen in the British and Guildhall Museums.

Stone querns were used in Romano-British times for milling grain; and as material suitable for the purpose could not be obtained in Britain, a hard volcanic rock was imported from Niedermendig, near Andernach on the Rhine. Part of one of these querns, made of Niedermendig lava, was found in Leadenhall Street, and is now in the British Museum; and recently a nearly complete specimen of an upper millstone of massive proportions was found at the corner of Prince's Street and the Poultry. This (now in the Guildhall) is the only one of its type which London has so far produced. It is of hour-glass pattern, and was rotated by means of levers inserted in square holes.

Steelyards and steelyard weights are to be seen in most collections of Romano-British antiquities from London.

The weights are usually ornamental, cast in the form of heads or busts, with rings for suspension. Many of these are very skilfully modelled. We may note two fine specimens in the British Museum, both found in the City : one the bust of Hercules or a gladiator, and the other the head of a dog.

In regard to crude or simple implements of iron, hooks, knife-blades and the like, it is often impossible to distinguish between those of Roman manufacture and those belonging to the late La Tène period—nor is the distinction a matter of great importance. The flesh-hooks with lateral prongs, sometimes described as Roman, are almost certainly of La Tène date. But there are two iron objects in the Guildhall which are typically Roman and of peculiar interest : the trident of a retiarius or net-fighter in the gladiatorial contests ; and a sacrificial axe or *securis*.

We have now to say something of the Roman mint of London, and of the principal hoards of Roman coins which have been found in the London area.

There is no evidence of a Roman mint in London before the time of the usurper Carausius (286–293). Up to that time the bulk of the imperial currency was imported, though coins appear to have been cast (not struck) in Yorkshire from the period of Hadrian to that of Alexander Severus : whether these cast pieces were authorized, or not, is uncertain. Carausius appears to have struck his coins at Colchester also, but during the short reign of his murderer and successor, Allectus (293–296), the coins of independent Britain were struck exclusively at London. The currency of the Province of Britain, after its restoration to the Empire, was minted in London under Diocletian, Maximian, Constantius and Constantine. In 326, the London mint was abolished by Constantine. It was restored for a brief period by the Spanish usurper Magnus Maximus (383–388), but we have no evidence of the functioning of the mint at any later period.

The London coinage of Carausius included pieces of gold, silver, and silvered copper ; the latter, known as *antoniniani*, being by far the most numerous. The gold

coins (*aurei*) are extremely rare, and it is clear that the supply of this metal was strictly limited. Carausius also issued from London a gold coinage with the name and portrait of Maximian, and coppers of Maximian and Diocletian. Under Allectus, the London mint issued coins of gold and of silvered copper, but no silver. After the restoration of Britain, no gold or silver coinage was struck at London, except during the brief revival of the mint under Magnus Maximus. Naturally, the greater number of the coins issued by this mint, at any period of its comparatively short and intermittent activity, were of bronze ; the rarity of the gold and silver pieces makes them objects of peculiar interest to the collector and of peculiar attraction for the dealer.

Collections of Roman coins or 'hoards' within the London area are not numerous or of great importance. We have already had occasion to refer to the immense number of coins of the Roman and succeeding periods which have been found in the river near the site of Old London Bridge, and it is probable that the Roman coins found there outnumber those unearthed within the bounds of the City. Apart from a few small hoards, often very imperfectly recorded, the most considerable finds of Roman coins in London were made in 1786 between Lombard Street and Birchin Lane, in 1882 at Lime Street (south of Leadenhall Street), and in 1924 at Tavistock Square, Bloomsbury.

The first of these finds consisted of 'near 300 brass of Constantinus and Tetricus',[1] found simply deposited in the earth. The Lime Street discovery was made at a depth of 18 feet, where a pot of coarse black pottery was found, containing a gold ring and about 500 *denarii* (silver) and *antoniniani* of most of the emperors from Albinus to Trajan Decius. The greater number of these denarii were of debased metal known as billon—an alloy with a large proportion of copper and having the appearance of brass. In the neighbourhood of the pot were fragments of pottery, fused glass, and charcoal.[2] A larger number of coins,

[1] *Arch.*, VIII, p. 126.
[2] *Num. Chron.*, 1882, p. 57 ; 1883, p. 279.

though intrinsically of less interest, made up the hoard found at Tavistock Square—a site, it should be noted, about a mile and a half outside the walls of Londinium. Here were found about 700 bronze coins of the Constantinian period, unearthed while digging for the foundations of the Imperial Hotel. The coins are said to have been found inside a tin box. Of these, forty-seven (of the two Constantines and Crispus) were struck at the London mint.[1] Smaller finds have been made, at various times, in Aldersgate Street, Fenchurch Street, Fetter Lane and Nicholas Lane (Lombard Street). It may be noted, that a gold coin of Maximian, struck at London by Carausius, was found in the river ; two bronzes of Carausius and two of Allectus (London coinage) were found on the site of Christ's Hospital ; a number of London coins of the two usurpers were discovered in Queen Street, Cheapside, not far from the place where the bronze figure of the archer was discovered. A particularly interesting coin of early date is a bronze of Domitian (38 B.C.) with the head of Julius Caesar, found in the Thames at London, and now in the Guildhall Collection. The coins exhibited at the Guildhall may be taken as representative of the London finds.

A silver ingot, perhaps destined for use in the London mint, was discovered in 1777 when the foundations for the Ordnance Office were being dug at the Tower.[2] It is now in the British Museum. With it were found three gold coins : two of Arcadius (383–408) and one of Honorius (393–423). It bears the stamp EX OF FL(?) HONORINI —' from the mint (or works) of Flavius Honorinus '. The sixth letter is by no means clear, and has been given (and illustrated) as E, I, and L. The question is not of much importance, but we should observe that Professor Haverfield, one of the most eminent and most skilled of all students of the Romano-British period, read the letter as E, and that the inscription would thus be ' from the workshop of Honorinus '. Mr. Reginald Smith gives the reading FL, and we have accepted this as the more probable.

[1] *Num. Chron.*, 1925, p. 398.
[2] *Arch.*, V, Pl. 29 ; *Num. Chron.*, 1915, p. 508.

It is easy enough, in a line drawing, to make the letter appear whatever is desired by the draughtsman ; and the drawings reproduced in the Inventory of the Royal Commission, by Roach Smith in his *Illustrations*, and in the British Museum *Guide to Roman Britain*, may be profitably compared.

For Further Reading : C. Roach Smith, *Illustrations of Roman London*, 1859 ; C. Roach Smith, *Catalogue of London Antiquities*, 1854 ; J. E. Price, *Roman Antiquities on the Site of the National Safe Deposit Company's Premises, Mansion House*, 1873 ; J. Ward, *The Roman Era in Britain*, 1911 ; W. R. Lethaby, *Londinium : Architecture and the Crafts*, 1923 ; *Victoria County History, London*, vol. I, 1909 ; *Royal Commission on Historical Monuments, Roman London*, 1928 ; *British Museum Guide to Roman Britain*, 1922 ; *London Museum Guides*, No. 2, 1930.

CHAPTER IX

MIDDLESEX IN ROMAN TIMES

THE traces of the Roman occupation in Middlesex are distributed for the most part along the lines of the Roman highways. Only in one case (Brockley Hill) are there traces or traditions of extensive remains, and of these little is known. Except where the subsoil is of gravel or sand, the entire county must formerly have been covered by a dense forest of oak-trees with a scrubby undergrowth ; and this fact, combined with the obvious disadvantages of living or building upon the clay, sufficiently accounts for the distribution of human relics from the late prehistoric to the early historic period. Guest was probably right in saying :

> ' I believe this district [Middlesex in the early Roman period] was . . . merely a march of the Catuvellauni, a common through which ran a wide trackway, but in which was neither town, village, nor inhabited house. . . . We have Caesar's authority for saying that the imperfectly civilized races of that period prided themselves in having a belt of desolate country round their settlements, and I have little doubt that between Brockley Hill and the Thames all was wilderness, from the Lea to the Brent.' [1]

The guide-book to the roads of the Roman Empire, known as the Antonine Itinerary and probably compiled early in the third century, gives us valuable information about the highways of Roman Britain, and is one of our authorities for the naming of places on those highways. Structural evidence of the roads has been afforded by a few chance discoveries and a few methodical diggings ; we know that they were usually well cambered and drained,

[1] *Orig. Celt.*, II, p. 391.

and made up of materials which naturally varied in different areas. We have no proof of any names given by the Romans to their British highways, though antiquaries are ready enough, and shameless enough, to invent them freely ; and the Saxon names of Watling Street, Akeman Street, Ermine Street, Stane Street, and so forth, are used for the sake of convenience.

In our present survey we are concerned with four important main roads of the Romano-British period : (1) the road from London to Silchester (Calleva Atrebatum), which passes across the southern part of Middlesex and leaves the county at Staines (Pontes) ; (2) the Watling Street or north-western road to Chester (Deva), probably corresponding with the line of the present Edgware Road and joining the Silchester road at the Marble Arch ; (3) the Ermine Street or north road to Lincoln (Lindun) and York (Eburacum), running along the line of the Kingsland Road to Tottenham and Enfield ; and (4) the highway to Colchester (Camulodunum), which undoubtedly crossed the Lea at Old Ford, but cannot be traced through London with any certainty, though it may be assumed to have entered the Roman town at Aldgate. There is indirect evidence (as we have seen) for a highway passing through the town wall at Ludgate, following the line of Fleet Street and crossing the north side of Trafalgar Square. The road leading to London from the harbours and fortified towns of Eastern Kent probably joined that from Portsmouth (Magnus Portus) at a little distance below Southwark.

The Romano-British road system was clearly developed in accordance with the natural importance of London, first as the main base for communications with the Empire, and then as the vital commercial centre of the Province. All the great highways led to and from London, like the roads and railways of the present time ; it was from London that the Roman energies were poured out in all directions over Britain, and to serve and supply those energies the roads came into existence. Primitive trackways had existed before ; but now, for the first time, a

civilised administration, with capable engineers to do its work, brought into being a well-conceived and well-ordinated system of ways and communications.

Outside London, there are only two places mentioned in the Antonine Itinerary which are situated within our district, and both are close to the boundary: Staines (Pontes), and Brockley Hill (Sulloniacae). The site of Sulloniacae is of peculiar interest, and claims more attention than it has yet received.

After reaching the summit of Brockley Hill, between Edgware and Elstree, at a height of 445 feet above sea-level, the north-west road or Watling Street turns from its previously straight north-westerly course and bears north-north-east for about a mile; at Elstree it bends round again and strikes a more or less straight line, roughly north-north-west, for St. Albans. There is no need to attach any extraordinary importance to this deflection, which, it should be noted, occurs after the summit of the hill has been reached, and it certainly cannot be accounted for by the earthworks which lie to the south-west of it on the west side of the road. The actual position of Sulloniacae is generally supposed to be on the eastern side of the Watling Street at or near the place where it turns at the top of the hill; though Guest, in his map illustrating the campaign of Aulus Plautius, placed it on the other side, thus implying a possible connection with the earthworks. But these works (as we shall see in our last chapter) cannot be definitely associated, at present, with the Roman or with any other given period. It is possible, and indeed highly probable, that the name of Sulloniacae was given to a settlement which extended on each side of the Watling Street. The site has never been systematically explored, and our knowledge concerning it is mainly derived from various unconnected records, made at different times and for the most part dealing with casual finds or with vague rumour. We should do well, however, to see what has been written about the site and its immediate neighbourhood before we try to form any conclusions.

Norden spells the name Sulloniaca, and he gives the

following account in his *Description of Hertfordshire*, published in 1598 :

' The ruynes of an old cittie or famous place, mentioned by Antoninus in his itenerary, which he placeth twelve miles *a Longidinio* from London, and nine miles *a Verolamio* a citie sometime neere S. Albans : And where others have heretofore placed this *Sulloniaca* at *Chipping Barnet*, regarding onely the foresayde distances, M. *Camden* by dilligent obseruation hath founde that it should stand vpon *Brokeley hilles* West of Bernet, whereby I being occasioned made inquisition thereof in my trauile, and was informed of the place where these supposed ruynes appeare, namely some fragmentes of the scituation of some decayed buildings where sundry pieces of Romish coyne haue been taken vp, as was informed me. This place indeed neere agreeth with the former distances of Antoninus, and standeth east of a regall auncient highway called Watling-street or *via consularis*.'

Here, although we have no details either of the ruins or of the coins which were found among them, it should be noted that the finds were made on the eastern side of the Watling Street.

In Gough's edition of Camden's *Britannia*, there is a vague reference to ' many ruins dug up on the hill now called *Brockley hill* ', and a further reference to ' coins, urns, and Roman bricks . . . dug up when Mr. Napier built his house, and in seven or eight acres round '.[1] Clutterbuck, in his *History of Hertfordshire*, quotes this passage, and adds : ' The most antient part of the present church of Elstree is partly built with Roman tiles, which were probably, at the period of its first erection, brought from these hills.'[2] In a later edition of Clutterbuck it is stated that the church was rebuilt in 1852, ' a little to the east of the old church, though partially on the same foundations, which consist principally of Roman tiles '. The great house built by Mr. Napier, and later destroyed, stood to the east of the road at the top of the hill. It should be noted that great quantities of Roman tiles and broken pottery were found in 1878 at Aldenham, close to Elstree, during work on the north side of the Grammar School, about three-quarters of a mile west of the Watling

[1] *Op. cit.*, 1806, II, p. 64. [2] *Ibid.*, 1815, I, p. 157.

Street. At Radlett, about three miles north of Elstree, two Romano-British pottery kilns were discovered in 1898.

William Burton, in his book on *Antoninus his Itinerary*, printed in 1658, mentions the site of Sulloniacae at Brockley Hill ' where are the remains of an old station and very much rubbish digged up '.[1] On Searle's map of Middlesex (*circa* 1750), Sulloniacae, described as ' An antient City in Antonine's Itinerary ', is shown as an oblong enclosure on the east side of the road, inside the bend at the top of the hill. Stukeley, in his *Itinerarium Curiosum*, refers to the site (under the extraordinary spelling of Suellaniacis), and says :

' Mr. Philpot, when digging his canal and foundations for his buildings, which are upon the site of the old city, found many coins, urns, and other antiquities. . . . In the wood over against the house, great quantity of Roman bricks, gold rings and coins, have been found in digging ; many arched vaults of brick and flint under the trees : the whole of the hill is covered with foundations. . . . By the road side a barrow lately dug away.' [2]

Philpot's house probably stood on the west side of the road at the top of the hill, north of the present Orthopaedic Hospital, and the writer is informed that quantities of Roman bricks and pottery were found when the upper soil was removed for the making of a tennis court on this site in 1909 or thereabouts.

In Lyson's *Environs of London* (1795) we are told that men digging near Bentley Priory in Stanmore, in 1781, found about fifty gold coins, two gold rings, a gold bracelet, etc. ; and the author states that ' great quantities of Roman antiquities, as coins, urns, gold-rings, etc., have formerly been found in this neighbourhood, which is said to have given rise to the proverb : " No heart can think, nor tongue can tell, What lies between Brockley Hill and Pennywell." '[3] The well known as Penny Well is in Fortune Lane in Elstree : it is a ' wishing well ', and this circumstance, together with the name of the lane, may indicate a Roman or pre-Roman origin. The finds from

[1] *Op. cit.*, p. 153. [2] *Ibid.*, 1776, p. 118.
[3] *Ibid.*, 1795, III, p. 392.

Bentley Priory are described in Gough's Camden,[1] where we are told that the gold coins were of Constantine, Valentinian, Valens, Gratian, Magnus Maximus, Theodosius, Arcadius and Honorius. In addition to the gold rings and bracelet there were 'some small silver and copper coins of Valentinian entirely corroded, and a plate or piece of silver inscribed *Honor*, set in a triangular frame of iron'. Sir Montagu Sharpe vaguely adds 'two antique bronzes' to the list, but quotes no authority.

Here, then, we have accounts of the alleged site written in the sixteenth, seventeenth and eighteenth centuries, and all agreeing on the essential point—that quantities of Roman relics, including masonry, have been found in the neighbourhood of Brockley Hill. But we are left in doubt as to the exact location and extent of Sulloniacae. Norden, indeed, places it definitely on the east side of the road, and Searle's map gives the same position; but many finds have been made on the western side as well. Bentley Priory is about a mile and a half to the west of Brockley Hill, and should, perhaps, be left out of the reckoning.

Turning to a more recent work, we find that in J. Thorne's *Environs of London*[2] the 'supposed site' is placed 'on the right side of the road by the 10th milestone—the gate leading to the enclosure is opposite the lane to Stanmore'. The unpardonable ambiguity of 'the right side of the road' is corrected by the mention of the lane leading to Stanmore, and the site is thus located on the east side of the Watling Street. But there is no lane at the milestone, and no milestone by the lane. The road known as Wood Lane, to which Thorne obviously refers, is at least 300 yards to the north of the tenth milestone (from London), and is at the top of the hill. He adds: 'The surface is much and irregularly broken, and overgrown with wild roses, brambles and thistles, with a few elms, chestnuts, and scrubby firs. About the summit are several hollows, and on the north the remains of a large artificial pond.' This description corresponds fairly well with the present appearance of the ground. There are two or three mounds close

[1] *Op. cit.*, 1806, p. 53. [2] *Ibid.*, 1876, p. 163.

to the gate, and traces of a rectangular enclosure of some extent, with the western bank running nearly parallel to the road. The ' large artificial pond ', if it ever was one, is marked by a broad shallow depression. Apparently the late Dr. W. Martin believed that the enclosure was about 130 yards in length north and south, and 120 in width east and west, and that it marked the position of Sulloniacae. It corresponds roughly with the position indicated on Searle's map.

The writer is informed by Mr. G. Bridgmore Brown, the

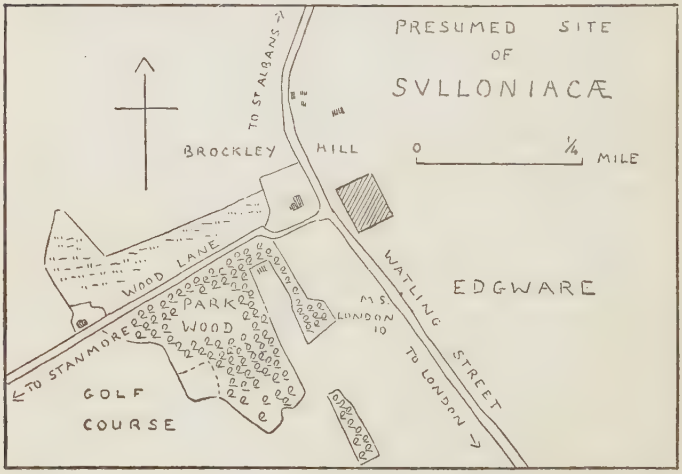


FIG. 31.—SITE OF SULLONIACAE

Secretary of the London and Middlesex Archaeological Society, that plans for the exploration of Sulloniacae, in which several members of his Society were to have taken part, were under consideration in 1918 or thereabouts ; but these plans, unfortunately, did not meet with the approval of the ground landlord, and came to nothing.

The site, therefore, remains somewhat of a mystery. There is no recent literature on the subject, and the last publication in a scientific journal of any finds from Brockley Hill appears to be a brief entry in the *Proceedings* of the

Society of Antiquaries for the year 1859, when Mr. C. D. E. Fortnum exhibited 'some fragments of Roman pottery and bricks found at Brockley Hill, where has been placed the Roman station Sulloniacae'.[1] In 1900, 'vases and bricks' are said to have been found, and in 1915, 'some Roman coins'.[2] A Roman cinerary urn containing a glass vessel and a small black glazed pot was dug up at Elstree in 1904, in a field about a mile to the north of Brockley Hill.

It is to be hoped that a careful record of any further finds at Brockley Hill, even if methodical excavation is impossible, will help to clear up the mystery and to provide some indication of the extent of the Romano-British settlement which undoubtedly existed there. We are perhaps justified in guessing that the settlement was of considerable size and importance, possibly preceded by one of pre-Roman date. Coins of Honorius, of course, indicate occupation at the end of the Roman period, or later.

From Brockley Hill the Watling Street runs in a practically straight line to the Marble Arch, the course of the Roman highway being probably identical with that of the modern road from London to St. Albans. Portions of the Roman way have been exposed from time to time at the southern end of the Edgware Road. It was found to consist of flint nodules packed closely together, set in lime on a bed of rammed gravel. On each side of the gravel bed or foundation, but below the metalled surface, ran a retaining wall of concrete. The width of the road seems to have been about 24 feet, and the metalling sometimes contained ragstone and other materials in addition to the flint.

South of the Marble Arch (if, indeed, it did continue in a southerly direction) the course of the Watling Street is unknown. In all probability, Roman traffic between this point and the town of Londinium was carried by the main road to and from Silchester, passing along the line of

[1] *Proc. Soc. Antiq.*, IV, p. 211.
[2] A. R. T. Eales, *Lecture on Hist. of Elstree*, 1922, p. 4.

Oxford Street and Holborn and entering the town at Newgate. But a southern prolongation of the Watling Street, or a secondary road leading to a Roman suburb at Westminster, is by no means out of the question.

In the *Victoria County History* (*London*, I) the reader will find maps giving the suggested prolongation of the Watling Street to what is now the southern end of Park Lane, where it meets an imaginary road from Ludgate; and from this point its course is plotted so as to strike the conjectured ferry at Westminster.

The scheme of the road system proposed in the *Victoria County History* differs considerably from that adopted by Dr. R. E. M. Wheeler in the Royal Commission's work on *Roman London*. Both schemes, as far as their detail is concerned, are based upon inference; and although that of the *Victoria County History* is the more speculative of the two, and may, perhaps, rely too much upon the evidence of isolated burials, both should be carefully studied and compared. The scheme of the Royal Commission is adopted in the present volume.

At the junction of the Edgware Road and Oxford Street there stood formerly a monolith known as the Ossulstone. Apparently it had no inscription, but it was supposed that it might have been a Roman 'geometric stone', a milestone or milliarium. It is shown on Roque's map (1741–1761), with the information that it marked a place where soldiers were shot. According to a writer in the *Victoria County History*, 'it was to be seen before 1822 a few yards south of Cumberland Gate'. In 1875, it was recovered from an accumulation of soil, dug up, and planted against the Marble Arch,[1] but there is no trace of it at the present day. A Roman milliarium may very well have stood at the point indicated.

At Enfield, close to the Ermine Street or Roman road to the north, a few relics of the Romano-British period have come to light. A pot containing coins of Domitian, Nerva, Trajan, Hadrian and Antoninus Pius was found in a field by Caterhatch Lane in 1820. In the *History of*

[1] *Trans. Lond. and Msx. Arch. Soc.*, IV, p. 62.

BRONZE HEAD OF HADRIAN
(16 IN. HIGH) *British Museum*

Enfield, published by W. Robinson in 1823, we are told that 'In Windmill-field large painted tiles have been frequently turned up by the plough. Part of a coffin was lately found, and also some urns, in one of which were some bones, and in another three pieces of gold coin.'[1] A 'brick hearth' was found in Mellish's gravel pit at Broomfield, with pots and coins and human bones. C. W. Whitaker records the finding of a burial ground about 20 yards square at Bush Hill Park in 1893–94. This contained urn-burials beneath a covering of chalk.[2]

More interesting and more extensive discoveries were made in the same district, on the site of Landseer Road, in 1902. Here was found a layer of blackened soil, with tiles (described as the remains of a hypocaust), pottery, safety-pin brooches, iron knives, and some thirty Roman coins dating from the second to the early fourth century. About the same time, a bronze statuette was found 'elsewhere in Enfield'.[3] This bronze was figured in the *Illustrated London News* of April 5th, 1902; it was about 3 inches high, a nude figure of hermaphroditic appearance, broken, and of no great artistic value. Later in the same year, a coroner's inquest was held on another group of Roman remains found at The Moat in Burleigh Road—again in the Bush Hill Park area. These remains consisted of a lead coffin, having the favourite Romano-British device of a reel-and-bead pattern with scallop shells on the lid, and two lead canisters, each protected by a cist or enclosure of tiles 12 inches square and full of cremated bones. Within the coffin was a skeleton embedded in lime, but no particulars of this have been published. The tile cists were said to have been found under an artificial layer of flints. Photographs of these discoveries, with a bare journalistic summary, were published in the *Illustrated London News* for November 8th, 1902, and a short account will be found in the *Proceedings* of the Society of Antiquaries, XIX, page 206.

A group of cinerary urns was found in 1774 in 'one of

[1] *Op. cit.*, I, p. 57. [2] C. W. Whitaker, *Hist. of Enfield*, p. 19.
[3] C. W. Whitaker, *op. cit.*, p. 19.

the well walks at Hampstead '. In a description of this group published by a correspondent of the *Gentleman's Magazine* (1776, page 169), we learn that a large ' repositorial urn ', with a capacity of ten or twelve gallons, was covered by a round perforated stone and contained a smaller urn with burnt human bones inside it. The group comprised three other urns and an earthenware lamp, but the position of these things is not clearly stated.

There are a few Roman bricks and some hypocaust flues in the fabric of Kingsbury Church near the Brent Reservoir, about a mile west of the Watling Street ; but as it is unknown how they got there, they cannot be accepted as proof of a Roman structure on or near the site of the church. Stukeley believed that the church stood within the enclosure of a Roman camp, and in 1757 published a typically fantastic view of ' Caesar's Camp at Kingsbury ',[1] making the equally fantastic assertion that the church was ' built of Roman bricks from the City of Verulam '. There are slight traces of mounds and banks in the vicinity of the church, but nothing to warrant Stukeley's picturesque view. Moreover, the area which he indicated, even when availing himself to the full of his marvel-making imagination and allowing his pencil its freest flight, is far short of that required by the field regulations of Roman times. It is said that Roman bricks have been dug up at Salmon Street, Neasden ; and other traces of Roman occupation are suggested by various finds in the neighbourhood ; but so far no definite Roman structural remains have come to light there.

No traces of a Roman settlement have been discovered on the road between Staines and London, and the signs of Roman occupation in the south of Middlesex are widely scattered and of small importance. The supposed ' Roman camps ' will be considered in our last chapter. Stukeley believed that the Roman road from Staines followed a line represented by ' the common road at present until you come to Turnham Green ', and he was doubtless correct. Lysons vaguely records the finding of a Roman

[1] *Itin. Cur.*, II, Pl. 62.

urn with coins in 1731 at Turnham Green, and Faulkner says that ' the old Roman causeway, which was very hard and compact ', was discovered in 1834 during work on the Goldhawk Road at Hammersmith. Tiles and coins (not described) were also found here about 10 feet below the surface. The further course of the Roman road from the west is probably indicated by the burials at Notting Hill, and soon after the Great Fire of 1666, ' vestigia of the Roman military way called Watling Street ' were discovered in Holborn, leading in a straight line towards Newgate.[1]

In 1928, the remains of a Romano-British pile-dwelling were examined on the edge of the alluvial meadow-land known as Old England at Brentford, at no great distance from the line of the Roman highway. It cannot be said that they were discovered at that time, for their existence had been long known to Mr. G. F. Lawrence (whose practical knowledge of the archaeology of the London Thames is probably unequalled by that of any other man), but it was due to the enterprise of Mr. Lawrence, and the ready backing of the *Daily Express*, that serious work was attempted on the site. The results were hardly spectacular. It was found that the remains were those of a rectangular hut, lying below the present high-tide level. The work had to be done as rapidly as possible between the tides, in circumstances by no means favourable for such a task ; and to this must be ascribed the incompleteness of the survey and the relatively small number of objects, or even of fragments, recovered from the site. At the same time, it is fortunate indeed that the investigations were carried out under the expert guidance of Dr. R. E. M. Wheeler, the Keeper of the London Museum.

The floor of the hut consisted of two layers of green clay, separated by wattles resting on horizontal timbers, and held together by vertical timbers or wall-posts driven some 3 feet or more into the gravel. A double layer of wattles had been placed above the clay flooring or platform, the one layer at right angles to the other. By this means, a raised platform nearly 2 feet high had been

[1] Maitland, *Hist. of Lond.*, 1739, I, p. 18.

set upon the original surface of the gravel. Neither the outline nor the full extent of the dwelling could be definitely ascertained. Dr. Wheeler tells us that the clay bedding was followed 'in so far as our time allowed', and found to extend not less than 35 feet from south-west to north-east.[1] The only complete vessel recovered was a pot of grey Roman ware, probably of second-century date. A piece of Roman roofing-tile found in the upper layer of clay beneath the wattle clearly proved the age of the dwelling, or, in any case, set a limit to conjecture. Among the fragments of pottery which were scattered round the site was the neck of a Castor ware beaker, which Dr. Wheeler considers as probably not earlier than the latter part of the second century. Bits of tile were mixed up with the pottery fragments, together with the bones of horse, ox, red-deer and pig. It must be remembered that the poor riverside dwelling here revealed was in all probability that of a humble Briton, and perhaps one that was never occupied for any length of time. Its discovery, though of some human interest, adds nothing to our knowledge of the Romano-British period.

The remains of a similar dwelling, consisting of a wattle floor laid upon horizontal wooden bearers, have recently (1929) been uncovered by Mr. H. R. Rainbow at Syon Reach (not far from Old England), and duly pronounced Romano-British by Dr. Wheeler and Mr. O. G. S. Crawford.

The Middlesex Thames has not yielded a large number of recorded Roman finds. In the London Museum there is the marble bust of a bearded man, rather over life-size, which came from the river at Chertsey: a poor, stodgy and spiritless piece of work, which, if it is a good portrait, is certainly that of a very dull person. In the same collection is a small bronze statuette of Athena (seated) from Isleworth. From some undetermined point in the river between Chertsey and Walton comes a complete bronze bowl, probably of late first-century date, now in the British Museum. A safety-pin brooch or fibula of arched type, certainly Roman, was found in the Thames

[1] *Antiquity*, III, No. 9, p. 20.

at Kingston, and was formerly in the collection of Dr. W. Roots. The finding of this brooch illustrates in a striking manner the occurrence of objects of different dates on a common level in the bed of a stream: it lay beneath 6 feet of gravel and 18 inches of blue clay, close to a place where Bronze Age weapons were found.[1] In the Layton Collection there is a handled jar, $7\frac{1}{2}$ inches high, and a jar of Castor ware with a small pedestal base which apparently came from the river at Strand-on-the-Green. The same collection has a vessel of flagon type in dark grey ware, but without handle, found off Jessop's Creek, Chiswick, in 1872; also, an Upchurch ware pot with small base from Thames ballast at Kingston, another jar of flagon type from the river at Chelsea, a dish in black ware from Old England at Brentford, a large pottery mortarium from Brentford, and two keys for tumbler locks from the Thames at Hammersmith. In the British Museum there is the cheek-piece of a helmet from the Thames at Kew, and we illustrate the iron sword with embossed sheath from the river between Fulham and Putney (Fig. 32).

The Putney or Fulham sword (found in 1873) is of great interest. It is the typical *gladius* of the Roman soldier, with a blade about 21 inches long, and the remains of an embossed bronze scabbard. On the upper plate of the scabbard we have Romulus and Remus suckled by the wolf, and above them is a hunting episode, showing a stag brought down by two dogs; on the lower plate is a foliated pattern with birds, butterflies and rabbits in the spaces. The sword is designed for work at close quarters, and is a thrusting and stabbing weapon extremely well contrived for the purpose.

Roman pottery, and many fragments of earthenware, have been found in the river at various times and in various places, including pieces of Upchurch and Castor ware; and a curious little mask in terra-cotta, found in Syon Reach, may be seen in the Guildhall Collection. Of the small miscellaneous iron objects found in the river, such as keys, fish-hooks and arrow-heads, many are probably

[1] *Proc. Soc. Antiq., II Ser.*, I, p. 84.

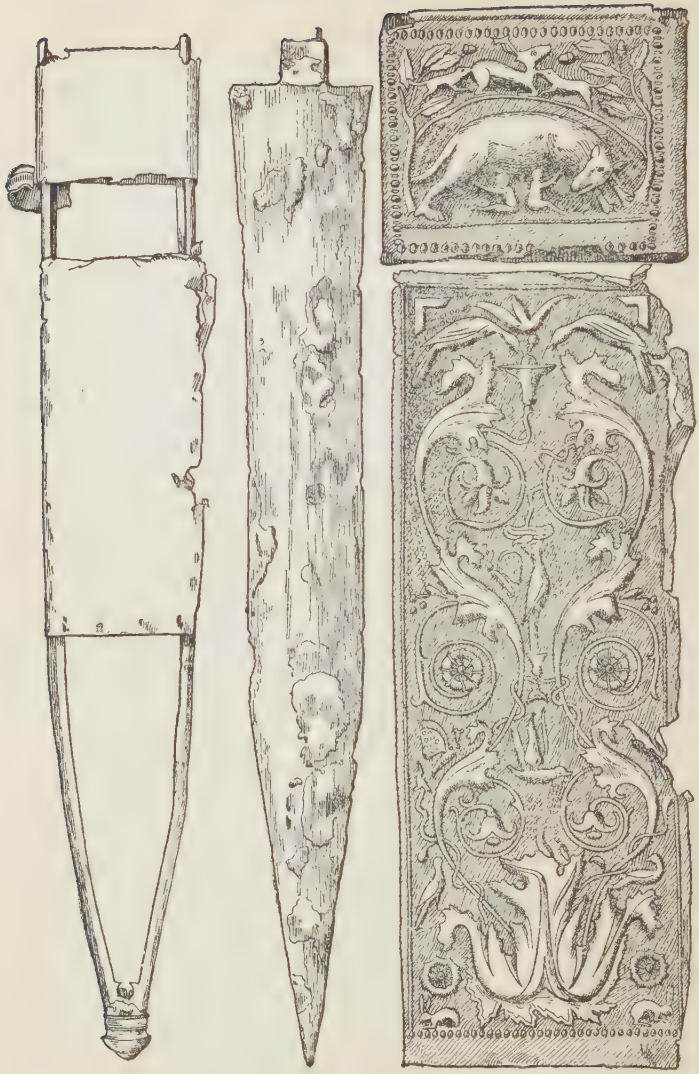


FIG. 32.—IRON SWORD AND BRONZE SCABBARD, THAMES

Roman, and others are of doubtful age. A safety-pin brooch of the so-called 'lamp pattern' from the river at Brentford, now in the Layton Collection, is possibly Roman.

Among the isolated finds made elsewhere in the county, but of no great importance, we may note fragments of Samian ware from the grounds of Bedford House at Chiswick, and the supposed remains of a Roman bath at Sutton Court in the same district, with a section of a stone pillar.[1] Pottery, described as Romano-British, was found in 1869 by Lane Fox (Pitt-Rivers) in the surface soil at Chaucer Road, Acton. A globular vase, with coins (635 denarii) of about 210 and a silver spoon with a long thin handle and round bowl, now in the British Museum, was discovered at Muswell Hill. Silver coins of Vespasian, Domitian, Nerva, Trajan, Marcus Aurelius and Septimus Severus were found on the Springfield Estate, Acton, together with a pottery lamp: now in the London Museum. Finds of single coins have no particular significance, and need not be noted here, nor are they very numerous.

We have already mentioned a possible Roman suburb at Westminster. Our evidence, however, does not justify us in stating definitely that a Roman settlement of any considerable size occupied this position. The idea of a ferry crossing the river at Westminster in Roman times is reasonable enough, though wholly conjectural, and it may be that a road, passing thence in a north-westerly direction, joined the main highway, thus providing a short cut for travellers or traffic proceeding to the western or north-western towns—a road which we should now describe as a 'by-pass'. Moreover, the dry patch of riverside gravel at Westminster (Thorney Island) would have certainly offered a pleasant and convenient site for building. But these are mere suggestions.

The actual evidence may be summarized in a few words.

Traces of a Roman building, presumably the brick piles of a hypocaust, were found under the nave of Westminster Abbey when Sir Gilbert Scott's grave was dug in 1878.

[1] Montagu Sharpe, *Antiqs. of Msx.*, p. 53.

There is no careful record of this discovery. During the digging for the foundations of the new Canons' houses in the garden of the Abbey in 1883, the ruins of a Roman house were uncovered at a depth of 14 feet below the surface. These ruins consisted of a cement flooring, tiles, and various fragments of masonry. More débris of the same kind was also found in the cloister. And it may be added that similar fragments were found by Professor W. R. Lethaby during his researches in connection with the church of Edward the Confessor.

It will be remembered that a fine stone sarcophagus, of Roman date, but obviously re-used at a later period, was unearthed in 1869 when the north side of the Abbey Green was lowered. The presence of a Roman burial, and especially one of such importance, is not compatible with the idea of a Roman dwelling site ; and as the sarcophagus was clearly not in its original position, and had apparently received a new lid and a new occupant, we cannot associate it in any way with the adjacent remains of Roman houses.

Professor Lethaby makes the following assertions :

'The Abbey was founded on the riverside, close to the great Roman Road which crossed from Lambeth by means of a ferry and continued northwards over the course of Edgware Road. It is evident that even in Roman days a road must have branched from Westminster to London along the course of the present Strand and the old King Street.'[1]

There remains for our consideration a relic which, standing in a category of its own, may be fittingly described here, at the end of our survey of the Roman period. Although found on the eastern bank of the Thames at Westminster, this relic appears to be closely associated with the river of Roman times and with the history of our district, so that we need give no further reason for its inclusion here.

During excavations on the site of the County Hall at Westminster in February, 1910, the workmen came on the timbers of an ancient wreck. Its position was 21 feet 6 inches below the level of Belvedere Road, 350 feet north of Westminster Bridge approach, and 300 feet east of the

[1] *Westminster Abbey and the Antiqs. of the Coronation*, p. 13.

present retaining wall of the embankment. At first, the men believed it to be the wreck of a barge, but it was soon evident that it was of far greater importance, and the County Council gave instructions for the careful uncovering and preservation of the timbers. All engaged in the work became keenly interested in the discovery, the soil was carefully removed, and the remains were identified as those of part of a ship of the Romano-British period. In October, 1910, after considerable delay in coming to a decision, the Council decided to have the timbers removed to a vault beneath the new County Hall. The work of removal was carried out with great skill, in spite of the fact that the wreck was then partially enclosed by the concrete foundations of the building. A strong cradle, with packing pieces cut to shape, was built under and round the timbers ; the wreck in its cradle was then lifted by jacks to the level of the concrete, and slid upon rollers to the vault. In 1911, it was removed to the London Museum at Kensington Palace, and it is now in the present Museum at Lancaster House.

The timbers consist of the greater part of the hull of what is almost unquestionably a Roman ship, including the midships portion, with stern and bows missing. It is estimated that the original length along the keel would have been about 60 feet, with a beam amidships of 16 to 18 feet. The ship is carvel-built : that is, her planks lie edge to edge, and do not overlap as in clinker-built craft (such as those of the Vikings). Most of the timbers or planks are secured by wooden pins, and few iron nails have been used in the construction, although employed to fasten a side-keelson (a timber running lengthways along the ship) to the ribs. It is possible that the side-keelson represents an addition, intended to give greater strength to the framework. A large part of the starboard side had been stripped away from the rest of the hull, and was badly damaged. The ribs are cut to shape, and limber-holes or small channels in the underside of the ribs on each side of the keel allowed for the wash of bilge-water to the space amidships, where it could be readily baled out. The

ribs are not secured to the keel in any way, but where the edges of the latter rise above the adjoining bottom planks (the garboard strakes) they are notched so as to override it.

The ship had been repaired, probably more than once, in the course of her service. A large hole, possibly indicating the final disaster, may be seen near the bows, on the starboard side of the keel, and cutting through the garboard strake.

It is stated that a portion of the mast, or of a spar, was found below the bows. A two-pulley block and a belaying pin were found inside the hull; and it is therefore evident that the ship was provided with tackle and carried a sail.

Many small objects and fragments of pottery were found scattered among the timbers. Some of these were doubtless retained as souvenirs by the workmen, but a case of typical objects recovered from the wreck and its immediate neighbourhood may be seen in the London Museum. Among them is a coin of Allectus the usurper (293–296), which enables us to suggest an approximate date for the wreck. The other coins found in the ship were of earlier date: two of Carausius (286–293), and one of Tetricus the Elder (268–273). Not far away from the ship there were found five iron horseshoes (possibly of post-Roman date), two iron spear-heads of uncertain period, an iron dagger and a bronze scabbard of 'Celtic' type, an early bronze of Agrippa coined in the reign of Tiberius the Elder (A.D. 14–37), a bronze of Domitian, and some fragments of pottery.

The bronze of Allectus, if it represents the coinage in circulation at the time of the loss of the ship (for we cannot doubt that she was run in to the bank and foundered), would suggest that we have here a relic of events which took place in the Thames between the years 296 and 297. But we must admit that, since only four coins were found inside the vessel, the evidence of date is not conclusive.

Among the miscellaneous things found in the ship are various fragments of black pottery, two 'gaming buttons', iron nails, parts of leather boots with hob-nailed soles, and the bones both of wild and of domestic animals.

When Mr. W. E. Riley, the architect to the Council, wrote his account of the ship, he noted that several large rounded stones were found among the timbers, one of them partially embedded in a strake. He made the reasonable suggestion that the stones might have been used as missiles. He also concluded that the boat 'grounded or sank on a bank enclosing a quiet pool of the river'.[1] Sir Lawrence Gomme put forward the ingenious and plausible theory that the ship may have formed part of the rebel fleet of Allectus, and was driven ashore or sunk by the imperial forces during the relief of London by Constantius Chlorus. He considers that 'there is some slight indication that fire has destroyed the upper portions of the gunwale [sides, rather than gunwale] down to the water's edge'. It may please those who like to exercise their imaginations to picture this vessel, disabled in action, with tumbling spars and blazing hull, run aground by the surviving members of her crew and left to her fate. At the same time, we must not presume that such was actually the case; and we must remember that neither the date nor the character of the ship can be established with absolute certainty. Nor need we suppose that she closely resembled the pretty picture of a Roman galley which now hangs above her timbers in the London Museum.

The oaken ribs of a ship, found in 1913 at a depth of 20 feet, on sand below peat at Storey's Gate, Westminster, and now in the London Museum, may be of Roman date; but this cannot be stated with certainty.

For Further Reading: *Royal Commission on Historical Monuments, Roman London*, 1928—for this chapter, the Introduction and excellent maps have special value; M. Sharpe, *Antiquities of Middlesex*, 1919—accounts of discoveries are useful, but conjectures must be treated with caution; F. Haverfield, *The Romanization of Roman Britain*, 4th ed., 1923; E. Guest, *Origines Celticae*, 1883—contains accounts of the early Roman campaigns in Britain; *British Museum Guide to Roman Britain*, 1922.

[1] *Ship of the Roman Period, etc.*, L.C.C., 2nd ed., p. 15.

CHAPTER X

THE EARLY SAXON PERIOD

THE two dark centuries which followed the withdrawal of the Romans from Britain are centuries of decay and disorder, and we possess very little reliable information as to the course of events.

'Few facts or sequences of facts,' says Haverfield, 'still fewer dates, can be established earlier than 597, the year when Augustine landed in Kent. . . . The seeming minuteness and precision of the Saxon Chronicle has hidden the blank from our eyes. But that kind of precision characterises the authorised version of the "prehistory" of every nation, whether it be Roman or Jewish or another.'[1]

At the same time, we must bear in mind that the early chronicles, though of little help in settling questions of date or in providing us with accurate detail, do certainly present a consistency of tradition which is by no means without value. The impatience of the academic mind, vexed by palpable errors in these chronicles, should not be allowed to hide from us their real merit, and their proper use, as records of the moods and impressions of people not far removed in time from the events which they described. Nor should the dismal vehemence of such a writer as Gildas, on the British side, obscure the firm ground of historical truth which lies beneath so much of his flowing rhetoric.

The last Roman officials, and the traders whose prosperity depended upon the maintenance of Roman institutions, and whose security was guaranteed by the imperial forces, must have left London very early in the fifth century; and

[1] *Roman Occupation of Britain*, p. 262.

in all probability most of them had taken their departure long before. From that time, until the consecration of Mellitus in 604, London has no history. Our inferences have to be based, in the main, upon evidence of a purely negative kind, and much is implied by the complete absence of all proof to the contrary

According to Professor Baldwin Brown, the Saxon movement westward began late in the third century, and the Saxons then became a maritime people, occupying territory from Western Hanover to Friesland. We are, of course, using the term Saxon to cover a whole group of Teutonic peoples, needy and cruel adventurers, who forced their way into South-East Britain and the northern parts of Gaul in the fourth and fifth centuries. Grant Allen very truly observed that ' proximity to the sea turns robbers into corsairs ', and we have already seen that the Saxon pirates had become rather more than troublesome by the beginning of the fourth century, when the defence of the Saxon Shore was definitely organized by the Romans. These pirates are described by Ammianus Marcellinus. Their raids were carried out swiftly and with no fixed objective ; they drove their keels where the wind carried them, putting their trust in fortune and in their own savage bravery. Sidonius Apollinaris writes of them as fearless navigators, delighting in the practical experience of storms, and hailing foul weather as an aid to piratical enterprise. We have archaeological evidence in regard to the kind of ship they used—a flat-bottomed craft about 70 feet long, with fifty oars. It is said that the raiders, when on the point of returning to the sea, tortured to death one in every ten of their prisoners. This procedure does not necessarily imply a barbaric delight in cruelty, but may have been purely religious, and intended, by means which appeared eminently suitable and reasonable, to propitiate the powers of wind and wave. The distinction between pure religion and pure cruelty is not always clearly defined, and many practices which are exceedingly distressing in themselves should be properly regarded as acts of ritual.

But the Saxons were by no means the only enemies of the British. The Picts (or Caledonians) and the Scots (invaders from Northern Ireland) descended in ever-increasing numbers. There is a legend to the effect that the British chief Vortigern, or Guthrigern, sought the help of the Saxons against these northern invaders. If so, it was a most imprudent appeal. The picturesque and vigorous words of Gildas, a sixth-century monk, probably give a fairly correct general idea of what happened. After telling us how Vortigern invited 'the fierce and impious Saxons, a race hateful both to God and men', he goes on:

'A multitude of whelps came forth from the lair of this barbaric lioness, in three cyuls, as they call them, that is, in three ships of war, with their sails hollowed by the wind and with omens and prophecies favourable. . . . From that time the seed of iniquity and the roots of contention planted their poison amongst us . . . and shot forth into leaves and branches. . . . So that all the pillars are levelled with the ground by the frequent strokes of the ram, all the husbandmen routed, together with their bishops, priests and people, while the sword gleamed and the flames crackled among them on every side. Dreadful to behold, in the midst of the streets lay the tops of lofty towers, tumbled to the ground, stones of high walls, holy altars, remains of human bodies covered with dried blood . . . and with no chance of being buried, save in the ravening bellies of wild beasts and birds.'

Gildas, let it be remembered, appears to have lived in the sixth century, and he was writing of events which must still have been vividly present in the traditions of the people.

Casual piracy had certainly developed into the desire for conquest by the middle of the fifth century. About 450 (possibly later) the Jutes gained a footing in the Isle of Thanet, and, to quote the words of the Chronicle, 'the Britons then forsook Kentland, and fled with muckle awe to London-burgh.'

From this it would appear that London was then still in a state of defence, or at least capable of affording shelter for a considerable number of refugees. But the fate of the town during the whole of the early Saxon period, and even the question of its continued existence as an inhabited

place, must remain uncertain. The movement of the Teutonic invaders, the founders of a race so often to distinguish itself by similar escapades, was exceedingly slow. It is probable that, by the middle of the fifth century, the Saxons were able to strike at Britain, not only from the Frisian coast, but also from various points on the shores of Northern Gaul where they had made settlements. The invasion, or more properly the penetration, of the Anglo-Saxons was not brought about by an organized or concentrated military effort, but was the result of gradual encroachment over a long period and from different quarters. There was no concerted policy. Probably the first extensive settlement was on the east coast. At what date the Saxons passed in force up the Thames, or whether they ever did so, we cannot say.

It is clear that the Teutonic invaders came into the country by two main entrances—the Wash and the estuary of the Thames. Our archaeological evidence is now tending to prove that the first of these two entrances—the Wash—was at first the more important. Landing on the flats of the Fen country, the raiding forces passed along the Icknield Way and thus reached the upper Thames valley west of the Chiltern Hills. There can be no doubt that a later incursion (perhaps not on a large scale) came into the Thames from the sea, and played its part in founding the kingdom of Wessex. These movements help to account for the continued abandonment of the site of London and for the late occupation of Middlesex by the Anglo-Saxons. The route of invasion by the Wash and the Icknield Way left our district untouched, and the subsequent entry of the Thames valley by way of the river itself seems to have been unassociated with any attempt or any desire to occupy London. Both lines, indeed, converged upon each other in the territory of Wessex.

From the scarcity of early Saxon relics in London, and in the other parts of our district, we have negative evidence which tends to confirm our belief that the first English settlements were made elsewhere. Nor have we any evidence whatever of the continued occupation of London

by a Romanized or native population. Haverfield was doubtless right when he said that London 'lay waste for a hundred years'.[1] The theory of unbroken continuity with Roman times, in common with the theory of a Celtic foundation, has no archaeological support, even if it must not be finally abandoned in view of the evidence which we now possess.

Towards the close of the sixth century London emerges dimly (a new London, re-built and re-organized) as the capital of the East Saxons. Middlesex was doubtless occupied, or at any rate those parts of it in the immediate neighbourhood of the Thames, at about the same time.

It is a matter for conjecture, whether the English invaders who colonized Middlesex and gave a new population to London came from the north-east, or up the Thames, or whether they came down the river from the westward. If London was a desert place, or but weakly defended, in the fifth and sixth centuries, it would have offered no opposition to an enemy advancing up the Thames valley; on the other hand, it may have offered no particular advantages. It is true that Bede writes of London at the beginning of the seventh century as 'a princely mart-town of many people arriving thither by sea and land'.[2] But the early Saxons were a wandering and barbaric people with no liking for town life, and with a fierce contempt for the amenities and comforts of civilization, which, indeed, they were incapable either of understanding or enjoying. And of this we are certain—that the Roman street system in London was entirely obliterated, and that there was no such system again until Medieval times, and then on a totally different plan.

The Saxon incursion, if it was ultimately to prove a blessing, was a well-disguised blessing in its early stages, and had every appearance of an irremediable disaster. The systems of well-ordered social life and of regular trade which had come into existence in the tranquil and industrious days of the *Pax Romana* were swept away. Peaceful intercourse with the Continent was at an end.

[1] Address to the Classical Association in 1912. [2] *Hist.*, II, 3–6.

Indeed, throughout the whole of the Saxon period, there seems to have been no sustained revival of commerce, no kind of civilized exchange. A few rarities may have been imported from Gaul, a few shiploads of wool, of grain or of slaves, may have been sent to foreign merchants, but there was little prosperity, little security, and little to which the term civilization could be applied with any degree of fitness. It may be said, that the Saxon, by an indiscriminate dispersal of the Romano-British elements, was clearing the ground in order that he might build upon it a social structure nobler and more enduring than that which had stood there before. It is probable that he was not concerned with building a structure of any kind. We may not agree with Professor Parsons, who calls him ' little short of a devil, sparing neither age nor sex ', but we may doubt whether he was much interested in anything which did not concern his immediate welfare, and we have reason to believe that his methods of settlement, though extremely practical, and perhaps not wholly at variance with the methods of later colonists, were not distinguished by much regard for the conquered. Professor G. M. Trevelyan, who, as a historian, takes always a cool and moderate view, does not hesitate to describe the Saxons as ' bloody-minded pirates, rejoicing to destroy a civilization higher than their own '.[1] Evidence of inferiority as a human type is certainly indicated by some of the skulls of the earlier Saxon period. Though large, they are relatively narrow in the frontal region, with marked brow ridges, and a backward protrusion of the occiput. According to Professor Parsons, the skulls from the Dover Hill cemetery near Folkestone were ' distinctly deficient in width '.[2]

In 597, Augustine, a missionary from Rome, landed in the Isle of Thanet. He brought with him the Christian teachings, and for the second time Rome civilized Britain.

The first Bishop of London, Mellitus, was consecrated in 604, and London in the seventh century was evidently a place of local importance. Yet there is little archaeo-

[1] *History of England*, p. 35.
[2] *Journ. Roy. Anthrop. Inst.*, XLI, p. 128.

logical evidence of this. London has no buildings, no traces of streets or roadways, no walls of early Saxon date.

The Church of St. Paul was built early in the seventh century, on ground ceded by Æthelbert to Mellitus. It stood, apparently, on a space now occupied by the eastern part of St. Paul's Cathedral, and close to it was the lesser church or chapel of St. Gregory. There are no architecural remains of these buildings.

St. Peter's Cornhill, St. Martin Ludgate, St. Mary Aldermary, St. Alphage (London Wall), St. Botolph (Billingsgate), and St. Benet Fink may be churches of early Saxon foundation. An earlier Saxon church, certainly dating from the time of Offa, preceded that built by Edward the Confessor, and the fragments of a building found under the North Green of the Abbey may have belonged to this. The circular stone cross-head from the church of St. John's-upon-Walbrook, now in the British Museum, is of Saxon, not Danish, workmanship, and may possibly be a relic of a Saxon church or preaching ground.

In regard to the Saxon occupation of Middlesex, we have, in addition to the evidence of some interesting burials, to be described later, the evidence of certain charters.

Middlesex was never an independent territory, nor is it clear when the term 'Middle-Saxon' was first used. It seems likely that the district was first colonized by the East Saxons during the sixth century. The earliest charters date from 687 to the end of the seventh century, and deal with the allocation of church lands at Staines, Shepperton, Sunbury, Greenford, Hanwell, Kingsbury and Hendon. Grants of land to the Church of St. Paul in London were made at Willesden, Stepney, Twyford, Harlesden, Islington, St. Pancras, Fulham, and Drayton. Tyburn belonged to the convent of Barking. In 704, the king of the East Saxons, then under the control of Mercia, granted land at Twickenham '*in provincia quae nuncupatur Middelseaxon*'.[1] At a somewhat later period Middlesex was definitely a part of Mercia. It appears to have had

[1] Kemble, *Codex Dipl.*, I, p. 59.

no ealdorman or duke of its own, but (with the exception of the ecclesiastical lands) came under the jurisdiction of the Portreeve of London.[1] From 748 the Mercian Council was held at London, and from 780 at Brentford. As a shire—no doubt with a dependent reeve or sheriff (shire-reeve)—it probably dates from about 886. The only reference to Middlesex in the Saxon Chronicle is under the year 1011, when it was invaded, not for the first time, by Danes. The fortunes of Middlesex were dependent on the fortunes of London, but London was never the capital of a united Saxon kingdom, and, with Middlesex, passed from one control to another.

The roadways of Roman times were used, though probably not repaired, in the Saxon period. Bede says that St. Albans was known as Watlingcester, and the *Codex* of Edward the Confessor mentions both Watling Street and Ermine Street. In early Saxon days the woods of Middlesex were infested by robbers, and honest men passed through them with loud shouting and the blowing of horns—a procedure which must have been of doubtful advantage.

We can point to few antiquities from our district which are unquestionably of early Saxon date, but a most interesting cemetery of this period formerly existed at Shepperton, on the north bank of the Thames between Walton and Chertsey.

Like too many early discoveries, the Shepperton cemetery was never thoroughly explored, and valuable evidence was thrown away by the workmen.

The burials were found in a field called the Upper West Field, bisected at one time by a hedge known as Domesday which crossed Shepperton Range and ran as far as the river. The site is close to the road from Staines to Walton. From the field, and the one adjoining it, gravel was extensively dug for the repair of the parish roads. Traces of the cemetery were found in the gravel pits as far back as 1817, in which year a fine cinerary urn containing bones (now lost, but here reproduced from a woodcut) was found by

[1] *Cartularum Saxonicum*, I, p. 246.

a labourer and afterwards sold to the Rector of Shepperton. In 1868 the site was examined by Manwaring Shurlock. He found that eight skeletons had been dug up from a depth of about 3 feet below the surface, all 'deposited in the same direction, towards the east'. Some 50 yards to the west of the place where the skeletons were found, the men had come across 'other bones' (including those of an ox), and fragments of pottery which were described as Roman. According to the workmen, the skeletons were buried in the gravel; three of them side by side, about a yard apart, and the others in different places. All were lying on their backs. Most of the bones were apparently either thrown away or taken by the men, and Shurlock was only able to recover the upper and lower jaws from the central burial in the group of three, and a fragment of another lower jaw.

A large pottery vessel which had been found 4 yards to the east of the burials was broken up by the men, and the bits flung in various directions. One of the labourers told Shurlock that he had destroyed many others, and believed that all of them contained bones 'like neck of mutton bones'. He also stated that fifteen years previously (in 1853) he had found a skeleton 'all doubled up', with a pot near the head. A skeleton in this position would suggest a prehistoric burial; but the practice of bending or flexing the body, though unusual, was by no means unknown in Saxon times, and in the large Saxon burying-ground at Sleaford in Lincolnshire nearly all the bodies had been arranged in this manner.

Shurlock exhibited to the Society of Antiquaries a cinerary urn found in gravel at Walton Bridge Green, Shepperton, in 1867. It was full of calcined bones, embedded in earth which had become as hard as concrete. He had found in this earth a small green glass bead and part of a bronze ornament. Other discoveries made it clear that cemeteries had existed both at Walton Bridge Green and on Shepperton Range.

In November, 1868, the workmen discovered another skeleton in the Shepperton Range pit, buried lying at full

length, and this was examined by Manwaring Shurlock. The face of the skeleton was covered by the iron boss of a shield which rested on the frontal bone and the breast bone. An iron sword, with traces of a wooden scabbard, was held by the left hand just under the left breast and by the right hand over the pelvic basin. There was a spear-head on a level with the head to the left, and a ferrule or butt level with the feet. A drawing of this burial is reproduced by Professor Baldwin Brown.[1] 'A little to the north, and beyond the feet of the skeleton, was an inverted urn, covering a heap of calcined bones.'[2]

The known finds from this important site are unfortun-

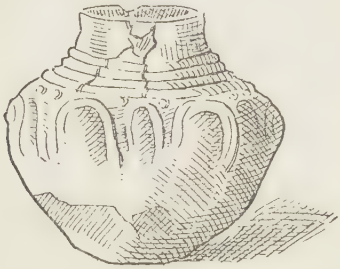


FIG. 33.—SAXON CINERARY URN, SHEPPERTON

ately very few. Professor Baldwin Brown has identified the urn found in 1817 as of 'Anglian' type, and observes that it is unusual to find urns of this type in the south of England. The pottery from Shepperton has been ascribed by Mr. Reginald Smith to the fifth or sixth century.[3] A small cruciform bronze brooch or fibula of rather late type was found near one of the skeletons. In the Layton Collection there is a grooved iron spear-head from Shepperton; but the sword, brooch, and other things from this site are in the Castle Arch Museum at Guildford. It is possible that a fine cinerary urn in the Layton Collection, with no locality affixed, comes from Shepperton. As far

[1] *The Arts in Early England*, Pl. XVIII, p. 177.
[2] *Proc. Soc. Antiq., New Ser.*, IV, p. 191.
[3] *Arch.*, LXIX, p. 30.

as the writer is aware, no discoveries have been made in recent years in the Shepperton pits. The pits in which the cemetery was exposed have long ago been filled in and abandoned, and are at present indicated only by a few marshy hollows.

In June, 1912, Sir Hercules Read gave an account of a Saxon jewel, a shield boss, a sword, a small spear-head, and pottery, said to have been found in a Saxon burial at Twickenham, and now in the British Museum. The present writer is able to state that considerable doubt now exists as to the place where these objects were actually discovered, and that he has in his possession a letter from their original owner which implies that they were found, not at Twickenham, but near the bank of the river on the Surrey side. In view of this uncertainty, and owing to the fact that the finds were not made by a competent observer, it is impossible to assign them to a definite locality, and they cannot be accepted as proof of a Saxon burial at Twickenham.

The jewel consists of an open gold-work disc, about 1¼ inches across, decorated in front with plaited gold wire, and set with five garnets. It seems to be of early seventh-century date. The sword, of well-preserved iron, but broken in three places, is of the usual Saxon type (to be described later), with a blade 31 inches long. The shield boss is unusually high, but has parallels elsewhere. (Two other shield-bosses, from Brentford and London, are in the London Museum.) The two urns exhibited are incomplete and devoid of ornament ; ' the smaller being of the type usually found with unburnt burials of the pagan period, and the larger not being of the Anglo-Saxon cinerary form, but thinner and better made, of a brownish clay.'[1] But it was known later that the larger urn was not found with the other things, but in a place by itself, at a depth of about one foot in blackened sand : it may be a cinerary of Roman date.

Sir Montagu Sharpe has illustrated three round Saxon brooches of gilt bronze, which, he says, came ' from the

[1] *Proc. Soc. Antiq.*, XXIV, p. 327.

ancient heathland at Hanwell ' in 1886, where, in a gravel pit, were the remains of skeletons, with coarsely woven hemp garments and iron spears. The burials were on the site of the County Schools ; six or seven graves appear to have been found, and more than fifty spear-heads.[1]

There is a scarcity of early Saxon relics from London, which is not surprising when we remember the probable desertion of the site during the first two centuries of the

FIG. 34.—BRONZE BUCKLE WITH CHIP-CARVING PATTERN, SMITHFIELD

Two-thirds actual size.

Anglo-Saxon period. Indeed, of all the London relics dating from the time between the Roman occupation and the Norman Conquest (a period of about six and a half centuries), by far the greater number must be ascribed to the time of the Vikings—that is, to the two centuries immediately preceding the Conquest.

A square ' chip-work ' buckle of bronze from Smithfield (and therefore from a site outside the town wall) certainly

[1] Montagu Sharpe, *Some Antiqs. of Msx.*, p. 45.

belongs to the early Saxon period (Fig. 34); and so also does a cruciform bronze brooch from Tower Street. Both are in the British Museum. The fine gold ring from Garrick Street, now in the British Museum, cannot be ascribed to a date earlier than the ninth century (Pl. IX). It is in excellent condition and of good yellow metal. The ring has been carefully overlaid with plaited gold wires which divide in front so as to enclose a filigree decoration. Garrick Street is more than a mile outside the line of the town wall.

We illustrate a bronze brooch from the City (Pl. IX, D), which may be of seventh-century date, and a buckle which can be more confidently ascribed to the same period. The larger brooch in lead or pewter, with a lion in the centre, was found in Cheapside in 1844, and should perhaps be regarded as a relic of the Viking age, for it can hardly be earlier than the late ninth century: it was originally gilt. To the sixth or seventh century may be ascribed a small bronze disc with spiral ornament, probably enamelled, which served for the suspension of a metal bowl or cauldron—a survival, or revival, of Celtic art.

In the London Museum there is a bronze pin with a decorated 'ring head' which is of seventh-century date and may have been imported from Ireland. It was presumably found in London. (A similar specimen, from London Wall, is in the Guildhall Museum). Here also may be seen a small bronze buckle from the Custom House, a fine torquated or twisted gold ear-ring from King William Street, golden ear-wires from the Aldwych, a fine pot from Gresham Street and another from the Savoy, and a bronze bowl of sixth- or seventh-century date from Moorgate Street.

A very interesting pottery cup or bowl in the Guildhall Museum, found in Aldermanbury, can be definitely assigned to the early Saxon period, and perhaps to the fifth century. It is of a light reddish-brown ware or terra-cotta, and is decorated with a curious raised pattern of squares and crosses. The same collection has a Frankish cup, possibly of sixth-century date, from the site of Christ's Hospital.

RING, BUCKLE AND BROOCHES, ANGLO-SAXON PERIOD, FOUND IN LONDON
British Museum

SMALL OBJECTS OF THE VIKING PERIOD FOUND IN OR NEAR LONDON
London Museum

The Saxon coins known to have been struck in London, or found in London, will be considered later.

It will be seen that the archaeological evidence of a peaceful occupation of the site of London during the early Saxon period is pitifully meagre, while some of the objects mentioned above were not found within the walls of the City. We may here note a very strongly marked and very significant contrast with the evidence belonging to the Roman period. Less than four centuries of Roman occupation have left behind them many thousands of objects, indicating peaceful settlement ; while more than six following centuries of Saxon and Viking rule have left only a few hundreds.

Objects of the early period, apart from weapons, are exceedingly rare in Outer London and in the County of Middlesex, but we may draw attention to an oblong bronze buckle-plate in the British Museum, from Barn Elms near Hammersmith. In the Sadler Collection at Gunnersbury House (but not exhibited at the time of writing) are two singular pierced lead discs or cakes, about 2 inches in diameter, said to have been found ' with Saxon pottery ' at Seward's gravel pit at Hanwell in 1910. We have already noted the discovery of a burial place in the same district.

The most common weapon of Anglo-Saxon times was the iron spear-head, the arm of the rank and file. It is found in a great variety of shapes and sizes, all characterized by a slit socket--a feature which is occasionally found in spears of the late La Tène period, and also in Roman specimens. Spear-heads of distinctively Saxon type have been found in considerable numbers in the Thames, from the Tower of London to Staines. Their distribution is fairly even. Good specimens have come from Westminster, Vauxhall, Battersea, Wandsworth, Mortlake, Strand-on-the-Green, Chiswick Eyot, Richmond, Kingston, Kew and Brentford. We have previously mentioned a grooved example from Shepperton. The grooves were made on each half of the blade alternately, so as to bring each face of the blade on a different plane

—no doubt with the idea of giving a spin to the flying weapon. Some of the spear-heads are only a few inches in length, and others so long and slender that they cannot have been very serviceable in action. An example of the latter type, from the Thames near London, is over 29 inches long; and another, also from the Thames, is 31½ inches long. In some cases the socket is much longer than the blade.

A very fine and well-arranged collection of spear-heads,

FIG. 35.—SPEAR-HEADS OF THE SAXON PERIOD
London and Guildhall Museums

mainly from the Thames, is in the London Museum, among which may be noted some small ones from Finsbury Circus; and we should mention an interesting series presented by Mr. C. R. Beard to the Guildhall.

Like most of the iron objects of antiquity, the spear-heads are usually much roughened and corroded by a dark rust. They are not often remarkable for beauty of form or for the skill of the armourer, but are rather examples of a weapon which could be quickly produced in large numbers and would be suitable for hard service. Decorated

spear-heads would seem to belong almost exclusively to the Viking period, but the writer has seen a specimen from a London site which, though it has a cleft socket, is decorated with two raised rings below the blade.

The Saxon sword was probably carried only by men of high rank or of military importance ; a supposition which is certainly confirmed by the evidence of burials. It is, however, a very inferior weapon, much too long in the blade for a comfortable balance, and badly designed either for cutting or thrusting. At the hilt end, the grip (usually of wood) was secured to the tang, the head of which was then beaten out so as to spread over the head of the grip, to which a pommel was sometimes added. The Saxon sword is a comparatively rare object. We have already mentioned one found in a grave at Shepperton, and another which was alleged to have been found with a burial at Twickenham. An extremely interesting specimen has recently been acquired by the British Museum. This, which is in an unusually good state of preservation, measures 30 inches from tang to point, and bears, on the upper part of the blade and close to the edge, the impressions, one above the other, of two sceatta-like dies, each impression covered by a thin layer of gold-foil. The sceatta (which we shall describe later) was a small coin of the Anglo-Saxon period, bearing decorative patterns closely resembling those which are stamped on the sword, though perhaps it cannot be definitely asserted that these are actually the impressions of coin-dies. Possibly they represent the mark of the owner or maker of the sword. This truly remarkable weapon was found in the Thames at Syon Reach (Isleworth), and was obtained for the national collection by Mr. G. F. Lawrence. It may be ascribed to the year 700 or thereabouts. We may also note in the same collection another Saxon sword from the Thames near London, a broad, long and heavy specimen, which formerly belonged to Roach Smith. In the London Museum there is one from Coway Stakes, and part of a blade from Blackfriars.

However unhandy the Saxon sword may have been,

another typically Saxon weapon was particularly business-like. This is a sort of cutlass with a single edge, a heavy blunt back and a sharp point, known as the scramasax, and evolved from a knife (*seax*) of the same form but much smaller. The heavier and more ornate types of the scramasax were made by the Vikings, but are certainly derived from Saxon and Frankish originals. We illustrate a well-known Viking specimen (Fig. 36) which shows the characteristic shape of the weapon, and to which we shall refer again in our next chapter. The advantages of this weapon are evident. It could be used for cleaving and ripping as well as for a straight thrust or a cut, and the heavy back would come into play in warding off a blow. Although a common weapon of the Franks in the fifth and sixth centuries, the scramasax is rare in England, except in the Thames area. The dating of specimens is not an easy matter, but it may be assumed that those with inlaid grooving or with ' damascened ' metal belong to the Viking period. The origin of those with runic inscriptions is obvious. Smaller and plainer forms, many of them not exceeding the dimensions of an ordinary knife, represent the Saxon prototype of the heavy Viking blade.

The forms of the scramasax may be studied in the London Museum, where there are representative types from the Thames. An exceptional specimen, from the Thames at Richmond, is in the Layton Collection, having a blade 8 inches long which curves upward at the point, both edge and back following the same curve. Knives of various types are well represented in the London Museum, where a fine example from Moorgate Street should be noted.

Another weapon which was brought to perfection by the Vikings is the battle-axe of iron. But although the great Viking axe with its broad blade is clearly a weapon, it must be remembered that the woodman also required an axe, and many of the simpler and smaller axes of the Saxon period must have been designed as implements. Here again, the problems of use and chronology are not always easy to solve. A good axe, swung at the end of a sturdy haft, is a thing so simple and so useful that it

seldom undergoes modification and seldom needs improving, unless made for a special purpose—such as cleaving skulls. As we shall see later, the Viking axe was made for such a purpose, and is therefore a specialized weapon ; but to say that all axes were meant for war would be as unreasonable as to say that all knives were meant for murder. We may be fairly certain that axes and hatchets, apart from those used in Medieval warfare, have not varied greatly in form for the last two thousand years. Consequently, it is not surprising to find that certain types of the iron axe-head, intended for useful rather than for warlike purposes, were made without modification throughout the whole of the Anglo-Saxon period.

There are, however, two types in use during the earlier period which are true weapons. One is the short light throwing axe or ' francisca ', and the other is the clumsy T-shaped axe (Fig. 37) ; both of Frankish origin. Specimens of the francisca type, from the Thames at Mortlake, Isleworth, Kew and Brentford, are in the London Museum ; and short thick axe-heads, probably from Old England, at Brentford, are in the Layton Collection. In the British Museum there is an axe-head of Frankish type, $6\frac{1}{4}$ inches long, made by folding a thick iron bar and welding the two surfaces together. It was found in the Thames off Whitehall in 1834. The T-shaped axe is represented in the London Museum by examples from Battersea and Brentford.

Coins of the Anglo-Saxon period were first struck in London early in the seventh century. They are known as sceats or sceattas, made of billon or debased silver (like the Roman *denarii*), and seldom with intelligible inscriptions. A specimen illustrated in the *Victoria County History*[1] has the name LVNDONIA on the obverse. The sceatta, as a distinct currency-type, dates from the sixth century. It is probably based upon the coinage of the later Roman period, chiefly that of Honorius ; but if this is the case it must be regarded as a mere travesty of its prototypes. Those who are zealous for the reputation of

[1] *V.C.H., London*, I, p. 161.

the Anglo-Saxon as an artist would have us admire the varied decoration of these coins ; and variety may certainly be admitted.

Towards the close of the eighth century the sceatta was replaced by the penny-piece introduced by the Mercian king, Offa. The penny is slightly less crude than the sceatta ; it is thinner, broader, and more trimly cut. On the one side it bears the name of the king by whose authority it was issued, and on the other the name of the mint-master who produced it. The inscriptions are boldly cut, and can be read without difficulty.

In the hoard found in 1828 at Crondall in Hampshire there was a gold coin stamped LONDVN, probably dating from the early seventh century. On the side bearing the inscription there is a cross, and on the other side a very crudely drawn full-face of a man, which, according to Professor Baldwin Brown, may be the portrait of an archbishop.

A hoard of 241 coins issued by Mercia, Canterbury, Kent, Wessex and East Anglia, and evidently deposited about 841, was found between Fleet Street and the Thames. We shall return to the subject of pre-Norman currency in the next chapter, when a much larger hoard of later coins will be mentioned. In this chapter we have confined ourselves, as far as possible, to antiquities of the earlier period.

The scarcity of early Saxon relics in our district is best accounted for by the scarcity of early Saxons. We have reason to believe that London, during the fifth and sixth centuries, was a place full of empty ruins and crumbling walls, occupied, in the Saxon imagination, by the complaining shades of her former people. Be that as it may, it is clear that the earlier invasions passed above and below London, and left but few traces of settlement, or even of passage, in the county of Middlesex. Like the town, the dark woods may have been full of terrors. The bravery of an uncivilized folk is always tempered and neutralized by the fears and quick timidity of the superstitious ; and the early Saxon, until he became acquainted with the

essentially practical and benevolent ethic of Christianity, must have been fully as superstitious as the other Teutons of his period.

For Further Reading : J. R. Green, *The Making of England*, 1900, 1904 ; F. Palgrave, *History of the Anglo-Saxons*, 1921 ; G. M. Trevelyan, *History of England*, 1926 ; *Anglo-Saxon Chronicle*, edited by E. Classer and F. E. Harmer (*Modern Language Texts*), 1926—an admirable presentation of the Chronicles, well suited for the general reader, who will enjoy both text and commentaries ; C. Oman, *England before the Norman Conquest*, 5th ed., 1921 ; G. Baldwin Brown, *The Arts in Early England*, 1921–1925—a standard work, for advanced students rather than for the general reader ; J. Bröndsted, *Early English Ornament*, 1924—another book for the advanced student, to whom it is indispensable ; *British Museum Anglo-Saxon Guide*, 1923 ; *Victoria County History, London*, vol. I, 1909 ; Nils Åberg, *The Anglo-Saxons in England*, 1926 ; E. T. Leeds, *Archaeology of the Saxon Settlements*, 1913 ; P. T. Godsal, *The Storming of London and the Thames Valley Campaign*, 1908 ; *The Conquests of Ceawlia*, 1924—two ingenious and interesting books, though rather speculative ; A. F. Major, *Early Wars of Wessex*, 1913 ; F. G. Parsons, *The Earlier Inhabitants of London*, 1927 ; *Saxon Skulls*, 1928—a portfolio of outline drawings with measurements.

CHAPTER XI

VIKING AND SAXON

AT the close of the eighth century a new foe threatened the shores of Britain. Whether known as Norseman, Dane or Viking, this new foe, hardy, fierce, and of rapid movement, was the most terrible that ever swept down upon the English land. He had already driven his long-ships to the Irish seaboard and down the coasts of Gaul. He was aiming now at richer booty; but, as yet, with no definite ideas of settlement or conquest.

The word Viking (Vik-ing), by which these raiders were known, is generally assumed to be derived from a Norse word *vik*, meaning a creek or long inlet of the sea—a fjord. Viking would thus mean 'creek-man'. But there is some doubt as to this. According to the Oxford English Dictionary:

'The name . . . was evidently current in Anglo-Frisian times from a date so early as to make its Scandinavian origin doubtful. . . . It is therefore possible that the word really originated in the Anglo-Frisian area, and was only at a later date accepted by the Scandinavian peoples; in that case it was probably formed from Old English *wic*, camp, the formation of temporary camps being a prominent feature of viking raids.'

The Vikings came from the fjords of Southern Scandinavia, but chiefly down the Skager Rack from the havens of Vestfold and Ostfold; it was not until nearly a century after their first appearance that they were joined by the settlers in Gotaland, Zealand, Jutland and Slesvig, who could properly be called Danes. The Vikings were essentially sea-rovers and pirates. They were the first men to make long voyages in provisioned craft and to

sail for days without sight of land. They drove their keels to Iceland, to Greenland, and even to the northern coasts of America.

Viking ships were not built for the shock of naval warfare, but for speed, seaworthiness, and easy beaching. We have a detailed knowledge of their construction from those which have been found placed in cairns or burial mounds, or sunk in river mud. Of these, the best known and most perfect is the Gokstad ship, found in a burial mound at Gokstad on the western side of the Oslo Fjord and now housed in the University Museum at Oslo. She was built of oaken planks ; her length was about 67 feet along the keel, and just over 79 feet from stem to stern, with a beam of 17 feet and a depth of about 4 feet amidships. She was a fine piece of shipwright's work, clinker-built, her planks fastened to each other with treenails and iron bolts, and caulked (that is, made water-tight) with cow-hair. The strong and graceful lines of her stem and forefoot, her shallow draught and light construction, prove that she was designed for fast rowing or sailing, and for being driven with safety through shallow water. Her mast (which, when not in use, could be lowered upon a crutch) was 40 feet long and carried a heavy yard and square sail ; it was stepped in a large wooden block, well contrived to take the strain. She had sixteen oars a side ; the oars were 20 feet long, and the steering-oar was fastened to the starboard ('steer-board') quarter. The famous 'Long Serpent' of Olav Tryggvason is said to have been 148 feet long at keel, with sixty-eight oars. But the Gokstad ship is the typical Viking craft, and we may take her as the representative of those fleets which so often pushed their way past the walls of London and up the Thames. We shall have occasion to describe the remains of one of these ships, found on the borders of our district.

The fleets of the Vikings are frequently mentioned in the sagas, and from these we learn that the sides of the ships were often painted in bright colours above the water-line, and that each oar was pulled by two or three men. When the warriors were raiding inland, a guard

of about half of the crew was told off to look after the ship.

Our chief literary source of information about the Vikings in Britain is the Anglo-Saxon Chronicle ; a record kept for over 250 years, and certainly incorporating earlier writings. The dates of the Chronicle are doubtless, in some cases, incorrect, and great events are set down with curious and exasperating brevity ; but the document is of prime historical value.

We learn from the Chronicle that between 786 and 793 :

> ' King Beorhtric [of Wessex] took to wife Eadburg daughter of Offa [King of Mercia], and in his days came first three ships of Northmen from Haeretha land [perhaps Hordaland in Norway], and the reeve [king's officer] rode thereto, and wished to drive them to the king's town . . . and they slew him . . . and those were the first ships of Danish men that sought the land of England.'

This raid (789 ?) marks the beginning of a long and cruel struggle with the sea-rovers who were eventually, though for a short time, to become the absolute lords of Britain.

In 793, ' whirlwinds beyond measure, and lightnings and fiery dragons ' in Northumbria, and a rain of blood in York, preceded the descent of the Northmen upon the church and monastery of Lindisfarne, or Holy Island, 10 miles below Berwick-on-Tweed.[1] Thereafter the Viking raids increased in frequency and in violence. At the beginning of the next century repeated landings were made on the southern coast. In 834 the long-ships appeared at the mouth of the Thames. A few years later, at a date which cannot be determined with certainty, the raiders forced their way into London for the first time, and there was a great slaughter ; but the Vikings were eventually driven out, or withdrew. Then the struggle began in grim earnest.

The Viking was doubly redoubtable, for he combined seamanship and daring of a supremely high order with a sound military organization, and his tactics and armament were both greatly superior to those of the Saxon. Once ashore, his pirate forces became a mounted infantry ; his

[1] *A.S. Chron.*, an. 793.

engineers threw up earthen ramparts and dug entrenchments; and the English had no sooner rallied to meet him at one point than he made a sudden and terrifying appearance at another, or retired quickly within his fortified camps. Sailing in summer time, his war-ships ran their keels aground in sandy bays or at the mouth of rivers, always ready to push off to sea again, swifter and better manned than the English vessels, and able to move rapidly and surely from place to place.

By the middle of the ninth century, the Viking approach had assumed the character of invasion. Unlike the mere adventuring of the Saxon pirates, the entry of the Danes or Norsemen was now effected by the controlled movement of regular forces in the hands of capable leaders. The landings were no longer carried out by independent sea-rovers with a few picked crews, but were definitely co-ordinated as part of a military plan. Instead of retiring to the sea after a swift raid into the country, the invaders withdrew to their defensible positions or prepared bases, and thus kept a footing in the land they were soon to conquer.

Some time after 850 (851 or 853), a Viking force went into winter quarters in Thanet. This wintering of a hostile force within the island proved the intention to start a regular campaign, and showed the power and resolution of the enemy as well as the weakness of the defence. In the following spring or summer, a fleet of 350 ships came up the Thames, Beorthwulf of Mercia was defeated, and London was occupied by the 'heathen men'. But the Vikings did not remain in possession of the town. They struck south across the river into Surrey. 'And King Æthelwulf and his son Æthelbald fought with them . . . at Oakley, and there they slew the greatest slaughter that we have heard tell of upon a heathen army . . . and had the victory.' [1]

It may be assumed, however, that from this time the Norsemen had absolute control of the lower Thames and that London offered no opposition to a force moving up

[1] *A.S. Chron.*, an. 851.

the river. In 871, the Vikings passed up the Thames to a point near Reading, where they established a camp. Halfdan the Dane was defeated at Ashdown ; but it is of significance, that he was afterwards reinforced by way of the river, and that he moved his army, either in 871 or 872, down the Thames valley to London, where he went into quarters and compelled the Mercians to agree to a truce. Halfdan was certainly in command of London between 872 and 874, and there he struck an elegant coin with the monogram of the town—a device copied some years later on the currency of Alfred.

But now King Alfred (871–901), skilled alike in defence and diplomacy, and the only English king who ever took an intelligent interest in the education of his people, changed the whole course of events. By the Treaty of Wedmore (878), Alfred, while retaining Wessex and the western half of Mercia, ceded the rest of England as far as the Tees to the Danes, and London was thus on the borders of the Danish dominion or the Danelaw. The invaders, however, had no intention of keeping within bounds. In 879 they ' sat down at Fulham on the Thames ', and it seems clear that at this period they were harrying the Londoners whenever they got a chance. In 886, Alfred restored order in London, put the town in a state of defence, and entrusted it to the ealdorman Æthelred of Mercia.

From now onward, the pressure of the Norsemen became more insistent. The whole Danelaw rose in arms in 894 to help a new invasion in the south. Under the year 902 in Æthelwerd's Chronicle we read how the Danes ' lock together their shields, brandish their swords and shake their lances in both hands '. But the decisive phase was not reached until the close of the tenth century, when Æthelred the Redeless was king of England.

In 982, or thereabouts, London was again sacked by the Vikings, and burnt to the ground. Alarmed by signs of the coming storm, King Æthelred assembled a fleet at London in 992. He was unable, or unwilling, to face the attack of Olaf Tryggvason, the ex-king of Norway, and

one of the great heroes of the sagas, who appears to have pushed up the Thames as far as Staines with ninety-three ships in the following year (possibly not until 994, after his attack on London). With his ally, Svein or Swegen Forkbeard, king of Denmark, Olaf assaulted London from the river, and endeavoured to fire the town.

'But there they suffered more harm and evil than they ever weened that any townsmen could do to them. For the holy Mother of God on that day showed her mercy to the men of London, and delivered them from their foes. So the Danes left London, and wrought the greatest evil that any plundering army could ever do, in burning and harrying and slaughter . . . and at last they got horses and rode whithersoever they would, doing evil unspeakable.'[1]

The pillaging forces of Svein and Olaf became known as 'the army', moving rapidly from place to place and keeping the population in a state of terror. Only the brave defenders of London opposed 'the army' with success; while Æthelred sought peace by means of bribes and bargains. Olaf, who was converted to Christianity, agreed to leave England and never to return. He kept his word, and was later killed in a sea fight with his own countrymen; but Svein was amenable neither to bribes, nor to persuasion, nor to hard blows.

Æthelred, thinking that he was justified in availing himself of any means in such desperate circumstances, organized a general massacre of the Danes in the temporary absence of their leader (*circa* 1002). Gunhilda, the sister of Svein and a convert to the Christian faith, was killed in this massacre, and Svein, returning to England, avenged himself by deeds of bloody savagery. For some ten years (with London still holding out) the Danish 'army' slew and plundered, and wasted the country in misery and havoc. The fear of the Norsemen was ever present in the hearts of the English people and in the tearful litanies of the Church, and there was no peace or security, either in burg or in countryside. In 1009, Thorkil the Viking ravaged the Thames valley as far as Oxford. At

[1] *A.S. Chron.*, an. 994.

last, probably in 1013, London was compelled to surrender, but was soon afterwards again in the hands of the English. Svein died in 1014,

The breaking-down of London Bridge, related in the *Heimskringla Saga*,[1] may have taken place after the death of Svein in 1014—if, indeed, it took place at all. According to the Norse version, St. Olaf had joined Æthelred on his return from Flanders, and helped him to recapture London from the Danes. Olaf and his Norsemen rowed up under the bridge, tied ropes to the wooden piers, and then, pulling hard down-stream, dragged away the timbers. The possibility of such an exploit may well be questioned, and the story of the alliance between St. Olaf and Æthelred is clearly at variance with the Anglo-Saxon records. But the alleged episode is worth noting, if only as the probable source of the ballad which tells us that ' London Bridge is broken down '.

If a bridge was destroyed in 1014, it must have been rebuilt soon afterwards, for when Cnut (the son of Svein) delivered a fresh attack on London in 1016 he found his way barred by the defence of London Bridge. He therefore cut a canal on the southern bank, and by this means hauled his ships to the western side of the bridge, ' and then with a deep trench and straight siege he compassed the city about.' London put up a stout resistance, and a part of Cnut's forces was defeated at Brentford by Edmund Ironside. But the victory of Cnut at Ashingdon Hill made the Danes masters of England, and in 1017 Cnut was proclaimed king. After his accession, he showed himself to be a wise and humane ruler, a giver of good laws and a lover of peace, with a fondness for church music. London, always dependent upon free trade, became once more a busy port, with merchants from the Baltic (pirates in a new guise, perhaps) drawing up their ships alongside her wharves. At last, though not for long, the land was at peace. Cnut died in 1035 at the age of forty.

We need not concern ourselves with the period of unrest which followed, or with the vicissitudes of Harold and

[1] *St. Olaf's Saga*, XI, XII.

Harthacnut. Our summary concludes with the reign of that gentle, unkingly but pious man, Edward the Confessor—a king whose policy and ideas might fairly be described as pro-Norman. It was he who, in the year 1065, came to Westminster 'and caused the minster to be hallowed, which he himself had built, to the honour of God, and of St. Peter, and of all God's saints'.

The London of late Saxon times must have been worth looting, and it was doubtless for this reason that the town was so furiously assailed by her enemies and so bravely held by her defenders. The burghers of London were fighting for something more substantial than mere sentiment, and the assailants had hopes of a prize more profitable than mere glory. The town had not then the military and political significance that it was to acquire later. It was not a capital town ; and when Edward the Confessor moved the government from Winchester he set it up, not in the city of London, but at Westminster. It had been revived in accordance with its old tradition and its old needs as a commercial centre, and its inhabitants were chiefly traders and merchants. Olaf and Svein, as we saw above, were unpleasantly surprised by the hardy resistance of these mere 'townsfolk'.

Proof of the town's wealth is afforded by the fact that its contribution to the Danegeld or tribute (or bribe) paid to the Danes in 1018 amounted to one-eighth of the sum paid by the entire kingdom. But we know nothing of the lay-out of the town at this period, and any attempt to reconstruct its features would depend almost entirely upon the imagination. There are early references to a bridge in Edgar's time, and the existing Roman wall was probably strengthened and repaired by King Alfred. No surviving fragment of London architecture can be ascribed to Saxon or Viking times, and it is astonishing that the traces of Anglo-Danish occupation should be so few and so scattered. Even if we allow for what may have been casually destroyed by excavation in recent times, it is certainly strange that there should be so little archaeological evidence of a populous and busy town.

The gates of London are mentioned in the Anglo-Danish charters, and these are Bishopsgate, the Aldgate or Aest Gate, Newgate, Ludgate, Aldersgate (Ealdredsgate), Cripplegate, and the Bride Gate. Tolls to be paid at Billingsgate are mentioned in the Laws of Æthelred.

The only certain traces of late Saxon architecture found within our district are the remains of Edward the Confessor's church (and perhaps those of earlier buildings also) discovered under the presbytery at Westminster Abbey. Here, in 1866, Sir Gilbert Scott found the remains of three ancient piers; and in 1909 Professor Lethaby brought to light what he considered to be the floor of the Saxon presbytery at a depth of $4\frac{1}{2}$ feet below the present level of the altar. The masonry was of Reigate stone. Professor Lethaby also found traces of an apse, east of the south door in the reredos. An excellent account of the Confessor's church, with plans, by Dr. J. A. Robinson, will be found in Vol. LXII of the *Archaeologia*.

No traces of Saxon architecture can be definitely proved in the existing fabric of any Middlesex church, though such traces have been suggested, on the evidence of long and short quoins, at Kingsbury and at Cowley. The present south door of Kingsbury Church is certainly not an example of original Saxon stonework, though it has been so described.

Nor are there many contemporary documents which throw much light on the affairs of the shire during the two centuries preceding the Norman Conquest. Two charters of the tenth century have been examined by Professor J. W. Hales.[1] The first of these, in the archives of Westminster, purports to be Edgar's charter to Mangoda, and might be ascribed to the year 968, but is possibly a forgery. The second is Æthelred's charter to St. Peter's, Westminster, now in the Stowe MSS. in the British Museum.[2] This latter, which is dated 986, gives the boundaries of ecclesiastical lands. It contains a reference to a mound or barrow, which has been understood as a

[1] *Trans. Lond. and Msx. Arch. Soc.*, VII, p. 560.
[2] Maude Thompson Cat., No. 10.

reference either to a mound at Tothill or to one of those which formerly stood on Primrose Hill. Cottages at 'Holebourne' are mentioned in Domesday Book as existing in Edward the Confessor's time.

Arguments based upon the present form of place names, without the support of early references, are worse than precarious. Tradition, or mere imitation, plays a large part in the naming of new settlements, just as it does in the naming of roads and houses, and the name of a place, in itself, gives no proof of the time when the place, or the name, came into existence.

We have now to consider some remarkably interesting discoveries made on the eastern boundary of our district, concerning which we are able to give some fresh particulars.

In 1900, during the excavation of the Lockwood Reservoir, in the Lea valley between Tottenham and Walthamstow, the men uncovered the remains of a Viking ship. The finding of this, and the subsequent removal of the timbers, obviously took place without careful supervision. From a very meagre account in the *Essex Naturalist* [1] we learn that the ship was lying bottom up in what was apparently a former backwater of the Lea. She was about 40 feet long, clinker-built, with iron nails. Her seams had evidently been caulked in the usual manner with a preparation containing cow-hair, portions of which were found. The timbers were greatly decayed. When the remains of the ship were inspected by the members of the Essex Field Club in June, 1901, some doubt was expressed as to their date; but the proof, though not produced, was apparently in the hands of the workmen or in those of dealers or collectors.

It was subsequently stated by the labourers employed on the work that a skeleton was found lying beneath the overturned ship, together with an iron sword and 'gold ornaments'.[2] Mr. A. S. Kennard was shown the sword, which was acquired by Dr. F. Corner, and appears to be the one which subsequently passed into the Odescalchi

[1] Vol. XII, pp. 7 and 151, and Pl. III.
[2] A. S. Kennard, communication to author.

Collection at Rome.[1] No account of the finding of this sword has been published, but it is mentioned and illustrated by Sir G. F. Laking,[2] and also by Dr. R. E. M. Wheeler,[3] both of whom describe it as having come from the Lea at Enfield. The gold ornaments have long ago disappeared, and very probably found their way into the melting-pot. The loss of these relics, and the absence of any record of their position, and that of the skeleton, when found, is certainly deplorable.

A fleet of Viking ships made its way up the Lea, to a point 20 miles from the mouth of the river, in 896. At this point a camp was made, and the fleet was prevented from returning by a simple but ingenious move on the part of King Alfred. The ship here recorded may possibly have formed a part of this fleet—a theory which is strengthened by the finding of the Odescalchi sword, which is of ' Norwegian ' type, and may be of late ninth-century date. Some of the decayed timbers of the ship are preserved in the Epping Forest Museum, Queen Elizabeth's Lodge, Chingford, together with various antiquities from the valley of the Lea.

What seems to have been another Viking ship, or boat, was found about 1830 in the Hackney Marsh. It lay at a depth of 4 feet below the surface of the marsh in a stratum of black clay with shells, and under a layer of yellow clay, evidently in an old bed of the river Lea. The boat was resting upon her keel, with timbers much decayed, and is said to have measured 20 feet from stem to stern, 6 feet across the beam, and 18 inches in depth ; she was clinker-built, and traces of the usual cow-hair caulking were observed.[4]

There is no doubt that many antiquities found during excavations in the Lea valley have been lost, sold or destroyed without any proper record of their finding, and that others which have found their way into museums

[1] Information from Mr. G. F. Lawrence.
[2] *European Arms and Armour*, I, p. 16.
[3] *London and the Vikings* (London Museum), p. 34, fig. 15.
[4] W. Robinson, *Hist. and Antiqs. of Hackney*, 1842, I, p. 24.

are incorrectly described. Little is now known concerning a pile-dwelling or crannog site which was uncovered in the neighbourhood of Tottenham ; and even less is known of the extensive pile-dwellings found in 1900 or 1901 during work on the Banbury Reservoir between Tottenham and Walthamstow. The latter site, on the right bank of the old river, was visited by Mr. A. S. Kennard some time after the piles had been exposed, but the objects found there had been previously disposed of by the workmen and were no longer traceable. Mr. Kennard found the horn handle of a knife or gimlet which was presumably of Saxon date.[1] We cannot too often deplore the fact that so many things of exceptional interest are acquired, either by the mere collector who never publishes, or who obstinately refuses to supply information, or by those who are concerned rather with purveying for museums and amateurs than with adding to knowledge. As a result of this, museum objects are labelled without sufficient evidence and without full cognizance of their discovery ; and other things pass into the sorry oblivion of a cupboard or cabinet.

It is fortunate indeed that the circumstances relating to the discovery of the wonderful Viking gravestone, found in 1852 on the south side of St. Paul's Churchyard, were carefully recorded at the time. The stone (Pl. X), which is now in the Guildhall Museum, was found during work on the foundations of a new warehouse for Messrs. Cook, Sons and Co., at a depth of slightly over 20 feet below the surface. It lay upon a rough, compact yellow sand which covered the gravel. To the north of it was a long hollow containing a human skeleton. No relics were associated with the skeleton, and most of the bones were thrown back again and re-buried.

The stone is a soft oolite which, according to Mr. Reginald Smith, probably came from one of the Bath quarries.[2] It had evidently been planted upright, but had afterwards tilted over. The original proportions were given by C. C. Rafn as 2 feet 10¾ inches in depth by 1 foot 10½ inches in

[1] A. S. Kennard, communication to author.
[2] *V.C.H., Lond.*, I, p. 168.

width—a considerable part of the stone below the sculptured panel had been broken off. The size of the panel itself is 18½ by 13½ inches. Colour was originally applied to this panel ; a fact already noted by Rafn in 1854, who considered that two pigments were probably used, a dark blue and a red. Much has been written about the intricate and remarkable sculpture, which is well shown in our photograph. Some would have it to be ' the emblem of the hart and hound ', and others the conflict of vice and virtue ; while others, less romantic, see only a fantastic animal with a ' redundant head ' on one foot ; and others, two animals of dragon-like form.

Dr. J. Bröndsted recognizes in this carving the combination of the *Ringerike* style with a descendant of the ' Anglian beast '. The Ringerike style, marked by a conventional treatment derived from the curling leaves of the acanthus, and named from the red-sandstone quarries at Ringerike in Southern Norway, may also, in the opinion of Dr. Bröndsted, have been evolved in England. At least half of the known examples of the style have been found in this country, and its period—1000 to 1050—coincides with that of the Danish supremacy in Britain. The ' Anglian beast ', a restless creature of fantasy, usually associated with the intertwining stems of the vine, came into existence in the north of England in the eighth century.[1]

In the upper corners of the panel are the so-called ' union knots ', perhaps derived from Ireland. The whole design is extraordinarily vigorous, and shows that curious violent interlacing which is a characteristic of Anglo-Scandinavian art in the eleventh century. We have, indeed, no finer or more complete example of that art, and the stone is not only a very fine piece of decorative work, but is also a document of the highest importance. The Ringerike treatment, shown by the curling terminals and by the arrangement of interlocking and spiral forms, enables us to date it with some certainty, and Wimmer has actually suggested the year 1030. It is, unquestionably, the work of a Scandinavian artist, but it combines

[1] J. Bröndsted, *Early English Ornament*, p. 235.

the old ' Anglian beast ' (evolved now as the ' great beast ') with the Anglo-Scandinavian Ringerikè motives, derived, if Dr. Bröndsted is correct, from the acanthus of the decorated manuscripts of the Winchester School.[1]

On the left side of the stone are the two lines of runes shown in our lower illustration (Pl. X). The inscription begins from left to right, but the lower line is inverted, and to read it the runes have to be turned the other way up—this inversion, of course, would have caused little inconvenience when the stone was upright. It may be transliterated as K(I)NA LET LEKIA STIN ÞINSI AUK TUKI. Various translations have been proposed. Kina may be read as Kona. Kona means wife or woman, and may be here used either with that meaning or as a personal name. It is possible, however, that the actual reading should be Konal, or even Konall. Letters are frequently omitted in runic writing, and especially when two letters of the same kind would come next to each other, which would be the case here if Konal was written in full. Rafn's translation is ' Konal and Tuki caused this stone to be laid '.[2] The objection to such a reading is that it does not give the name of the deceased person thus commemorated, and so fails to explain the purpose of the stone. Wimmer reads ' Finna and Toke had this stone placed in position ' —a reading which, though clumsy, agrees in substance with that of Rafn, except in the transcription of the first name. Professor Baldwin Brown has also suggested ' Finna '. Dr. G. F. Browne read ' Kona and Tuki caused lay this stone '. Other readings are, ' His wife caused this stone to be laid, also Tuki ' (a wholly unsatisfactory version), and ' Kina [Ina, Kona, or Konal] let this stone be set to Tuki ' The last is, at least, a reasonable commemorative inscription, which can hardly be said of the other readings ; but it should be noted that Wimmer has suggested that a second stone, bearing the name of the deceased, may have been laid upon the grave. Tuki has been equated with Tokig, one of Cnut's ministers.

[1] J. Bröndsted, *op. cit.*, p. 293 ff.

[2] See refs. in Gazetteer.

The name was not uncommon in northern lands, and was latinized as Tycho. As for Konal, one might be tempted to see there an early form of the present Connell, nor is such a derivation by any means improbable. Ireland in the eleventh century must have had a considerable Danish population, and we have already noted the probable Irish origin of the ' union knot ' which is seen on this stone.

Two fragments of another gravestone of the same period, with decorative features closely related to the Guildhall stone, are in the British Museum. The circumstances and exact place of the find are not recorded, but the fragments are known to have come from the City of London, and were presented to the national collection by Mr. (afterwards Sir) A. Wollaston Franks in 1884. Here again we have the ' union knot ' device, and the principal figure is that of a quatrefoil, not altogether unlike a four-bladed propeller, which may (or may not) be intended for a stylized version of the Christian cross. The stone is a sandstone, ' possibly a sarsen from the Thames basin.' [1] As the design is entirely decorative and has no animal motives it may be taken as representing the Ringerike style in its purest form, and it is, indeed, chosen as an example by Bröndsted. It has been pointed out that the decoration is closely related to a corner pattern from a Gospel-book of the Winchester School, and that the resemblance between the design on the stone and the design in the manuscript is too obvious to be the result of accident.[2] If that is so, we have here a most convincing proof of the connection between the origin and the final applied development of the Ringerike style. Dr. G. F. Browne believed that there were traces of two runes on the edge of the stone, which he read as KI—a possible connection with Tuki again.[3] A recent examination of the stone has revealed a rather dubious K on the left side of the lower fragment (looking at the stone from in front), but no other letter is visible. The down-stroke

[1] *V.C.H., Lond.*, I, p. 169.
[2] J. Bröndsted, *Early English Ornament*, p. 297.
[3] *Arch. Journ.*, XLII, p. 251.

VIKING GRAVESTONE WITH RUNES, FROM ST. PAUL'S CHURCHYARD
Guildhall Museum

or minim of the K (or rather of the runic equivalent) is firmly incised, but the limb is only faintly indicated.

In these interesting gravestones we have evidence of a Danish burying-ground in the very heart of London, and the burials were clearly those of important people. And it is not without significance, that the stones had been placed upon a surface identical with that of the Roman period, and at no great distance from the site of an early Roman cemetery. The date of both stones is determined by their ornament, and is between 1000 and 1050.

We may here note a small bronze object from the Thames at Hammersmith which is supposed to be a model of a gravestone in the Ringerike style, and has the 'union knot' at one end, interlocked with scrolls in such a way as to simulate the fleur-de-lys. It is exactly one inch in width and just over 4 inches long (British Museum).

In the Guildhall Museum there is a fragment of a decorated gravestone from the churchyard of St. Benet Fink, with simple interlaced ornament, which is perhaps of eleventh-century date, but should be regarded as of Anglo-Saxon, not Danish, workmanship. It is probably part of the cover of a stone coffin.

Perhaps, in the early eleventh century, the Danish and Saxon quarters of London were clearly differentiated. Vikings and Londoners are not likely to have been good friends at any period; and we have now to examine the weapons which bear witness to the long conflict between the Vikings and the English.

The two distinctive weapons of the Viking—the long sword and the broad battle-axe—are well represented in our district.

We have spoken of the inferiority of the native Saxon sword: the swords of the Norsemen or Danes, on the contrary, were remarkably good weapons. The main features which distinguish the Viking sword from those of Teutonic pattern are the tapering channelled blade and the heavy pommel. To the Viking, a sword was not a piece of dead metal: it was a strong and cunning friend, with a name, a history and a reputation, and sometimes

with magical powers. It was the most treasured and the most costly of his weapons, with 'courage in the blade and terror at the point'. The dull rusty or stained iron which we now see was once bright and gleaming, the tarnished guard and pommel shone with inlays of gold, silver and copper.

A singularly ornate metal sword-handle, of which only the upper part is preserved, was found in Fetter Lane, and is now in the British Museum. It is made of silver, partly gilt so as to give contrast to the spirals of the design, which is different on each side. The whorls and spirals are engraved, and their effect is heightened by the use of a dark inlay (*niello*) and by the ingenious arrangement of the gold and silver surfaces. The pommel, with a central lobe, is regarded by Mr. Reginald Smith as of transitional type; but this beautiful fragment is not likely to be the work of a Saxon craftsman, and probably belongs to the early ninth century.

The typical Viking sword of the tenth and eleventh centuries is shown in Fig. 36. The finest of these (36, B) was found in the Thames near Westminster in 1897, standing upright with the point downward. The blade, which is just over 30 inches long, has been forged out of twisted iron rods by a process known as damascening, often employed by the Scandinavian armourer. On the guard and pommel are inlaid lozenges of gold, outlined in copper. This fine weapon is matched by another, from the Thames at the Temple; a plain, well-balanced sword of perfect design, now in the British Museum.

The curious circumstance of finding a Viking sword standing upright was repeated in 1905, when, 'at dead low water during an unusually low tide', the greater part of one was discovered in that position about 50 feet from Putney Bridge on the Wandsworth side.[1] It was noticed at the time that, at the place where the sword was found, the traces of an old channel could be seen, marked by rows of tree-stumps embedded in peat. The end of the blade was missing, and by a rare stroke of luck was found in

[1] *Proc. Soc. Antiq.*, XXI, p. 147.

the following year in the Putney Reach. The complete sword may now be seen in the London Museum. It ranks with the Temple and Westminster specimens as a fine example of the later type, with lobed pommel and down-turned or 'shuttle' guard.

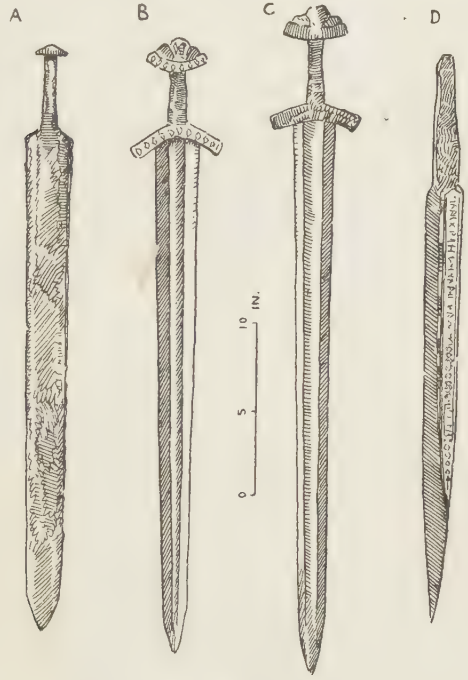


FIG. 36

A, Saxon Sword from the Thames; B, C, Viking Swords from the Thames; D, Viking Scramasax with Runes

British Museum

Another fine sword, from an old bed of the meandering Lea at Edmonton, is in the British Museum. It measures $39\frac{1}{2}$ inches over all, and has a guard of 'shuttle' pattern, which, with the pommel, has an inlaid chequer design in brass. The pommel, at first glance semicircular in outline, is grooved in the usual fashion, so as to produce three

lobes. It is probably of eleventh-century date. Of rather similar type was a sword exhibited to the Society of Antiquaries in 1888 by Colonel Lane Fox (Pitt-Rivers), found in the Thames at Battersea, with the pommel thinly inlaid with gold and copper, and runic characters, 'quite illegible', on the blade.[1] Interesting but fragmentary swords of eleventh-century date, from Staines and Brentford respectively, are shown in the London Museum, where also are a few broken specimens of the earlier types from the Thames at or near London.

We have already described the scramasax or sword-knife. This formidable weapon is represented by many examples from the Thames (though scarce elsewhere in Britain), and it may be safely assumed that the longer and heavier types belong to the Viking age and are of Viking manufacture. The grooves which in many specimens run parallel with the back of the blade are sometimes filled with inlays of brass, copper, or some other metal, which, when polished, would have afforded a pleasing contrast with the iron surface. A scramasax from the Thames with unique decoration is in the British Museum (Fig. 36, D). On one face it has the *futhorc* or runic alphabet, followed by two strips of ornament with some runic letters between them: *futhorc* and ornament are both inlaid in plaited gold (or brass) and silver wire. The weapon, which is not of the finest make, is thus a literary document of the first importance. In the illustration, the blade is shown as straight, but it is actually bent towards the point. We may note another British Museum specimen, with broad heavy blade inlaid with plaited brass wire, found with coins of Æthelred II (978–1016) in Honey Lane Market. Another in the same collection, from the Thames at London, is of unusual length (about 36 inches), and must have required a heavy grip as a counterpoise.

Many Viking battle-axes have been found in the Thames, particularly at or near London. The broad fan-shaped axe must have been used with deadly effect in fighting; a weapon neither so quick nor so full of resource as the

[1] *Proc. Soc. Antiq., II Ser.*, IV, p. 143.

knife or sword, but striking downward on the head or the shoulder with terrible force, and hard to parry. For this heavy downward striking the fan-shaped axe-head is cunningly designed and swings well at the end of a long, strong haft. Axes are often mentioned in the sagas, and, like swords and spears, were known by name and renown,

The best collection of battle-axes from London and the Thames is certainly that in the London Museum, where may be seen the interesting group of seven axes, found with a plain wood-cutter's axe, six spear-heads, a pair of

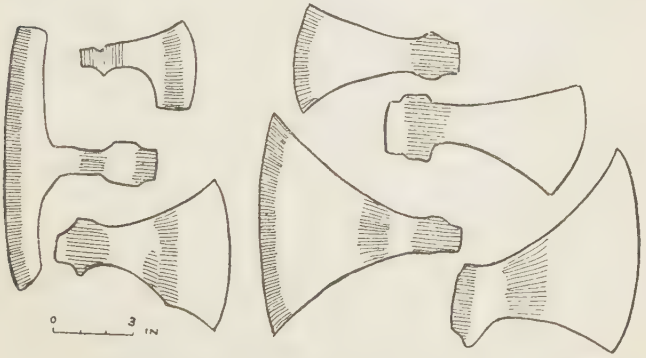


FIG. 37.—TYPES OF VIKING AXE-HEADS FROM THE THAMES
London and Guildhall Museums

tongs and a grappling iron near the site of Old London Bridge. Two of these axes have decorated brass sockets, fitting the haft-hole of the axe—a feature by no means common. The finding of these weapons in one place, together with objects which clearly formed part of a ship's equipment, is certainly suggestive of an encounter between the citizens of London and a storming party of Danes. We may assign the group to the early eleventh century. Another example of a battle-axe with a bronze or brass tube for the haft comes from the river at Chelsea, and is also in the London Museum. Other plain specimens have been found in the river at Battersea, Strand-on-the-Green,

Barnes, Richmond and Kingston. One of the finest examples of the great fan-shaped axe may now be seen in the British Museum, where it is shown mounted on a short wooden haft : it was found in the Thames at London. It may be observed, that a Viking axe-head in Dr. Root's collection, from Kingston, was found under 7 feet of gravel and 2 feet of blue clay, on a level where, if records are correct, relics of all periods from the Neolithic to the Tudor lie together.

The Viking spear was a common weapon and was made in many forms ; but spear-heads with ornamented sockets are comparatively rare and were clearly intended for the use of chieftains or leaders. From the sagas we learn that spears had names, such as ' The Serpent of Battle ', ' The Flying Dragon of the Wounds ', or ' The Shooting Serpent '. Although the split socket of the Saxon spear-head distinguishes it from the typical Viking spear-head with closed socket, it is probable that both types were contemporaneous in our district during the ninth, tenth and eleventh centuries.

Of the Viking spear-heads found in this area, we need mention only a few noteworthy or typical specimens. Perhaps the most interesting of these is one of the six found with the group of weapons at Old London Bridge. The socket is decorated with a silver inlay which picks out an elaborate pattern of those ingeniously intertwined forms which are so characteristic of Viking decoration in general. Another decorated spear-head is illustrated by Roach Smith [1] ; but here the design, presumably inlaid with some white metal, is relatively simple. The so-called ' Carolingian ' type, with bars or wings on the socket, probably intended to check the passage of the spear-head through a body, is represented by two fine specimens from the Thames at London (British Museum) and by a less graceful specimen from Wandsworth (London Museum). It has been suggested that spears of this kind were used for hunting. A long, slender spear-head, also from the Thames and now in the British Museum, has the socket

[1] *Cat. Lond. Antiq.*, p. 104, No. 552.

decorated with fifty-four bands of copper and silver inlay ; and in the same collection there is a fine series of Viking date, all from the river at or near London. In the Guildhall Museum we may note a well-preserved example of the smaller type, with three raised rings on the socket just below the base of the angular blade, found near Aldersgate in 1925.

The fragment of a leather sheath, found in 1927 at No. 99 Cheapside (corner of Lawrence Lane), is a unique relic of the Viking period. It lay in black mud at a depth of 16 feet, and is in surprisingly good condition. On the face of the scabbard (which is about 15½ inches long and was probably made for a scramasax) there is a typical Viking pattern which, according to a writer in the *Antiquaries' Journal*,[1] 'agrees with the Jellinge series of Scandinavia, but in the middle may be noticed the "union knot" which is characteristic of the Ringerike style ; and the row of lozenges is suggestive rather of the native Trewhiddle style, dating from the late ninth century.' The reader who believes that styles are restricted to periods is therefore left to make his choice. In the opinion of Dr. R. E. M. Wheeler, the decoration is in the Jellinge style, and may be ascribed to the tenth century. This interesting relic is in the Guildhall Museum.

Horse equipment of the Viking Age is represented, in our district, by iron stirrups, spurs and snaffle-bits. Three stirrups from the Thames are in the British Museum, and of these the most notable is one from Battersea with a spiral decoration of brass inlay. Another fine specimen, of similar form and also with brass inlay, from the Thames near the Tower of London, is in the London Museum. Here also are two snaffle-bits, from Moorfields and Noble Street in the City. The first of these has an overlay of bronze or brass ; and the second, an overlay of silver. Prick-spurs and horseshoes can with less certainty be assigned to the Viking period.

Chief among the finer ornaments of the Anglo-Scandinavian period found in London is the gold enamelled

[1] *Antiq. Journ.*, VII, p. 526.

brooch, found in Thames Street opposite Dowgate Hill in 1839, formerly in the Roach Smith Collection and now in the British Museum. The brooch consists of a circular compartment, with a male bust in coloured enamels executed by the *cloisonné* or cell-work method, enclosed by a border of rich and intricate filigree work in gold, containing four pearls set at equal distances. The portrait (if it is one) is full-face, and is evidently intended to represent a regal personage. Background and garments are of a greenish-blue enamel, the face is of opaque white enamel, and the hair is slightly indicated by a dark colour. Set upon the head is a crown or diadem with three projections, and two spiral fillets which descend towards the shoulders. The border is a most beautiful example of early gold-work, showing a degree of care and delicacy which a modern craftsman could not surpass. There can be no doubt that the brooch is of Anglo-Saxon type, whether made in this country or imported, but there is no reason for supposing, as Roach Smith did, that the bust is intended for a portrait of King Alfred; nor can it be definitely ascribed to the ninth century. The British Museum *Guide* suggests that it is 'perhaps of the tenth century'; but comparison with another brooch, found in 1774 with eleventh-century coins near St. Mary-at-Hill Church, brings an even later date within the bounds of possibility. But whoever the regal personage may be, or whatever his period, it is certain that he wears clothes of a Teutonic style.

Among the smaller decorated objects we should note two strips of gold-plated copper, with engraved patterns in the Ringerike style, from Smithfield, a gold-plated bronze mount from Tower Hill, and a silver bracelet with chevrons and a hatched background, from Westminster, all in the London Museum. A hoard of ornaments, consisting of twenty-six pewter brooches, six finger rings of twisted silver wire, six pewter rings for brooches, and five decorated pewter beads, double and single, was found in 1838 in Cheapside. This hoard is probably of the early eleventh century, and the objects are exhibited

in the Guildhall Museum. In the Victoria and Albert Museum, South Kensington, there is an exceptionally beautiful silver ring, with decorated bezel, belonging to an earlier period (probably late ninth century), which was found in the Thames at Chelsea in 1856.

An elaborately ornamental but clumsy thing described as a 'censer cover' of bronze, found in the Thames at London Bridge, must stand here in a category of its own.[1] It is a square bottomless casket with gabled sides and blunt animal heads projecting like knobs at the corners. The spire, which probably completed the cover, has been broken off, and the greater part of two of the four gables is missing. Others have been found at Pershore in Worcestershire and at Canterbury, and it is assumed that they are of late tenth-century or early eleventh-century date. A writer in the *Proceedings* of the Society of Antiquaries [2] suggests that the present example (which is in the British Museum) may be as late as the twelfth century.

Bone was used both by Saxon and Viking for the manufacture of a great variety of objects: pins, combs, girdle-tags, spoons and gaming-pieces.

The combs, sometimes with neatly made and prettily decorated cases (not unlike those which ladies now carry about), are cut with remarkable skill and precision, and the makers evidently prided themselves upon their fine work—'Thorfast made a good comb' is cut in runic letters on a bone comb-case found at Lincoln. Some are double, with fine teeth on the one side and coarser teeth on the other. Most have the simple ring-and-dot pattern which is a characteristic feature of decorated bone-work of the Anglo-Scandinavian period. Plates or rivets of bronze were occasionally used to fasten or reinforce the different parts of the comb. The Viking type is similar to our modern combs, but those of 'whip-handle' form are probably Saxon. Good specimens may be seen in the principal London collections: we may note, in particular, a neat and well-finished example with a case, from Thread-

[1] J. Bröndsted, *Early English Ornament*, p. 264.
[2] *Proc. Soc. Antiq.*, XXI, p. 52.

needle Street, in the London Museum (Pl. IX, E); and a large specimen with a flat openwork pattern at each end, found at 99 Cheapside (where, it will be remembered, the leather sheath was discovered in 1927), in the Guildhall.

Bone pins are fairly numerous, but cannot always be dated with certainty, unless of typical form or decoration. One with a flat pierced head and traces of a Ringerike pattern in the London Museum (Pl. IX, F) may be compared with a finer specimen from the Thames in the British Museum; the less ornate specimens do not call for detailed mention here. We may observe, however, that the London Museum has examples from Warwick Lane, Fenchurch Street, Moorgate Street, Leadenhall Street, Abchurch Lane, Bell Alley and Crutched Friars. A bone pin-head of unusual size, from Bucklersbury, is in the British Museum.

The Viking was fond of games of skill and of chance, and the sagas tell us that he used to lose his temper over these pastimes, with bloody, and even fatal, consequences. It is not clear that chess, as we understand the game, was played by the Vikings. The games of *hnefa-tafl* and *skak-tafl* were played on a chequer-board with pieces of unequal value and of different powers, but we can hardly ascribe to these games the bone or ivory pieces usually described as 'chessmen' (Pl. IX, C). Some of these pieces have pegs under their bases to fit into holes in the gaming-board—possibly a feature of sets made for use at sea. The ivory 'chessmen' are sometimes cut out of the teeth of horses. Pieces of the 'chessman' type are rare (two, from Westminster and Newgate, are in the London Museum); but the flat bone discs, used probably for games resembling draughts or backgammon or fox-and-geese, are comparatively frequent. These are usually decorated on one face only with a ring-and-dot pattern and concentric circles, and their undersides are smooth and flat. We illustrate an exceptional decorated piece from Blackfriars, in the London Museum (Pl. IX, D). The ordinary types are well represented in our collections—the London

Museum has about forty of them—and must be reckoned among the commoner antiquities of the period. Most are isolated finds, and the pieces belong to different sets—a fact which points to the popularity of the game, or games, played with them. Here, again, convenience for use at sea may be indicated by the central perforation which is so often present, and which would have enabled the pieces to be slipped over pegs on the chequer board. One in the Guildhall has an octagonal perforation instead of the usual rounded hole in the middle.

A very remarkable piece of carved bone in the British

FIG. 38.—BONE CARVING (FRONT AND BACK) FROM THE THAMES
Two-thirds actual size

Museum, apparently representing the Virgin and Child, was found at Chelsea. Its period is not certain, but it may be tentatively ascribed to the eleventh century, and is perhaps the work of a native Anglo-Saxon artist.

Another interesting bone piece is here illustrated (Fig. 38). It is a brooch or dress-fastener engraved in the Jellinge style (tenth century), and shows a human figure with the legs disarticulated and turned violently upwards. The figure is wearing a complete suit of a granulated appearance, possibly intended to represent chain mail, and the head is missing. It should be noted, that the ribbon-like swathing which binds the distorted limbs to the trunk,

and also the spirals at the joints, are leading characteristics of this particular style. At the back, the bone is cut away so as to form a bar or toggle through which a strap or cord or the folded end of a cloak could be passed. This curious piece was found in the Thames at London.

The Viking and Anglo-Saxon engravers, before transferring their designs to metal or stone, were in the habit of trying-out new patterns and making sketches on waste pieces of bone, which are described as ' trial-pieces '. These sketches are lightly cut with a sharp point upon a hard and smooth surface of bone, or upon some other convenient material : in the Guildhall Museum there is a small fragment of Roman red-glaze or Samian ware on which a Viking artist has noted a new idea. A bone trial-piece in the British Museum, found in the City, is engraved on both sides with studies for interlacing designs ; and a similar piece, from London Wall, is in the Guildhall Museum. These are about 7 and 6 inches long respectively ; possibly fragments of ox ribs, stained a dark brown by long contact with the soil. The intention of the sketches, which are lightly scratched on different parts of the bone, is quite evident. A short cylinder of bone in the Guildhall Museum (found at St. Martin's-le-Grand), not unlike a napkin-ring in shape and size, with sketches of ornament in the Ringerike style engraved upon it, can with less certainty be regarded as a trial-piece, although the sketches could not very well have been joined together so as to form a complete design.

An unexplained and incomplete bronze mount or fitting, consisting of a metal edging with part of a runic inscription, terminated by an animal's head of grotesque and elaborate form, the whole about $7\frac{1}{4}$ inches long, is in the British Museum. It was found in the Thames near Westminster Bridge in 1866. Although the runes are deeply and clearly cut on the side of the edging, there is considerable doubt as to their interpretation. Mr. Reginald Smith compares the animal's head with the ' Irish hound ' of illuminated manuscripts, and it is possible that we have here, either a work influenced by the Irish school, or an

object imported from Ireland. The animal has blue glass eyes, and the general style would suggest a date early in the eleventh century.

We cannot deal here with the numerous small objects, such as beads, often of doubtful date, which are ascribed to the Anglo-Scandinavian period. Neither can we discuss objects which might equally well be ascribed to the Norman period—such as the interesting 'barrel' padlock, found on the site of Christ's Hospital, and presented by the Governors of St. Bartholomew's Hospital to the Guildhall Museum in 1928. Our survey must be concluded by a brief note on the coins of Anglo-Scandinavian date which have actually been found in London.

These coins are not well represented in our collections, although a hoard of several thousands of coins of Edward the Confessor and William the Conqueror was found in the City, and about a hundred coins of Burgred of Mercia (851–874), with one of Æthelred (863–871), were dredged out of the Thames at Waterloo Bridge.[1] One of the most interesting of London coins is that struck by Halfdan the Dane, a Viking leader, probably about 874, during the temporary control of London by the invaders. This coin bears the well-known London monogram which was soon afterwards copied (with discernment and good taste, if not with originality) by Alfred on his pennies. Under Æthelstan (925–940) there were eight mint-masters in London. A representative collection of London finds is exhibited in the Guildhall Museum, and contains coins of Alfred, Æthelred, Æthelstan, Edgar, Cnut, and Edward the Confessor. In the London Museum there are two coins of Æthelstan and three of Edmund from Threadneedle Street.

For Further Reading : W. G. Collingwood, *Scandinavian Britain*, 1908—an excellent book of a popular kind, well written and accurate; G. M. Trevelyan, *History of England*, 1926; J. R. Green, *The Making of England*, 1900, 1904; P. B. du Chaillu, *The Viking*

[1] *Num. Chron.* (3 Ser.), XIV, p. 29; (N. Ser.), XVI, p. 323; (3 Ser.) IV, p. 349; V, 254.

Age, 1889—has a valuable collection of illustrations, and provides an interesting general account of the Vikings, with numerous passages from the Sagas; A. Mawer, *The Vikings*, 1913; J. Brönd-sted, *Early English Ornament* (trs.), 1924; R. E. M. Wheeler, *London and the Vikings* (*London Museum Catalogues, No.* 1), 1927; *Victoria County History, London*, vol. I; *British Museum Anglo-Saxon Guide*, 1923; T. D. Kendrick, *History of the Vikings*, 1930.

CHAPTER XII

ANTIQUITIES OF UNCERTAIN DATE

THE increase of real knowledge has destroyed that easy confidence which, in the early days of archaeology, could recognize at a glance the work of Early Briton or Druid, of Roman, Dane or Saxon, whether in stones or earthworks, in stakes, mounds, 'camps' or trackways. Scientific methods, in opposition to those which rely mainly upon conjecture or hazy tradition, require proof—either that of known type or of associated material—before a final ruling is given on the question of date.

In this chapter we have to discuss those remains and objects which do not afford definite proof of date. Of all such remains, the most conspicuous and the most puzzling are those of earthworks. From their very nature, simple things like banks and ditches, plain mounds and mere enclosures, do not in themselves bear witness to period or purpose. The pure faith and the lively imagination which, in the eighteenth century (and in later times also), could see so clearly that here was the camp of Julius Caesar and there was a Druid seat of judgment, are no longer with us. We must dig, search, measure—and even when we have done this, the whole thing may remain as much a mystery as it was before. Works or mounds which stand upon the surface, and which have been visible and accessible at all periods since the time of their construction, may contain or enclose the objects of any of those periods, and may also have been considerably disturbed or altered. Nor can we attach any importance to the local or traditional naming of such remains. Burial

chambers of the neolithic period are still known in many places as ' Druid's altars ', or described as Roman ; while King Arthur, Julius Caesar, the devil, and other celebrities have any number of prehistoric antiquities to their credit.

The name Grime's Dyke (and such variants as Grimsdyke, Grimsditch and Grime's Ditch) is applied to the massive earthen bank which, usually with a well-marked fosse or ditch, runs in sections of varying length in different parts of Buckinghamshire, and, in our own district, between Pinner and Harrow Weald Common. It may be doubted whether the fragmentary sections which remain ever formed part of a continuous work, and their purpose is not evident.

Grime's Dyke in Middlesex can (or could) be traced with certainty from a point north of, and close to, the Ruislip-Stanmore road at Pinner to the western edge of Harrow Weald Common, where it abruptly disappears. Its course at Pinner and at Royston Park is now being obliterated by the building of houses, but a perfectly preserved length, exactly one-third of a mile from end to end, can be seen running along the edge of the golf course at Royston Park, and easily reached from the road (Oxhey Lane) which leads from Hatch End, Pinner, to Watford (Fig. 39). Here, the broad, rounded bank is covered with short grass, and a small stream runs along the ditch below it. In this section the course of the dyke is north-easterly ; at the southern end of the section it is cut through by the roadway, and its line through Royston Park is at present far from clear ; at the northern end it disappears altogether at the edge of Weald Wood, but is found again on the north side of the wood, where it points almost due east, but slightly to the southward, and in the direction of the earthworks on the lower slopes of Brockley Hill at Stanmore. At this latter point, therefore, the dyke has curved round and completely changed its direction.

' I have little doubt,' wrote Dr. Guest, ' that it was connected with the earthworks which surrounded the British town of Sullioniacae (Brockley Hill). But the whole face of the country in that

neighbourhood has been long since torn up for brick-earth, and the dyke has consequently disappeared. Whether it was continued east of Sulloniacae I cannot say.'[1]

On the golf-course section, the bank of the dyke rises to a little over 4 feet on its inner or northern side, and falls about 12 feet on the outer or southern side into the fosse, with a span of about 60 feet over all. These measurements may be taken as giving the average for any com-

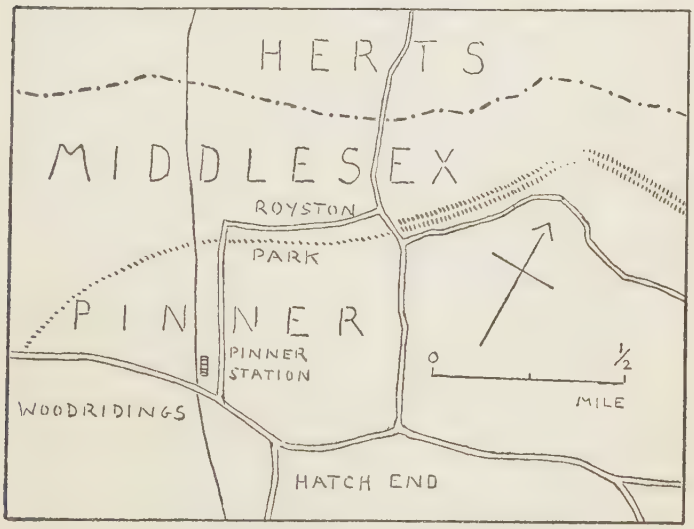


FIG. 39.—COURSE OF GRIME'S DYKE

plete section of the dyke, and it will be understood that the construction of such a work, if it ran continuously for many miles, must have involved a prodigious amount of labour. Although the obvious purpose of a high bank and a ditch is that of defence, we must consider, first the difficulty of defending any great length of such a work (especially at night or in foggy weather), and secondly the fact that the dyke is not laid out in relation to the surround-

[1] *Orig. Celt.*, 1883, II, p. 290.

ing country in such a way that it would be well placed either for defence or for observation—indeed, at the place we have described, it is planned with an absolute disregard for the simplest of military requirements. It is possible, and we think probable, that the bank was the essential feature of the work, and that the ditch represents merely the excavation from which the material of the bank was dug; a view which is borne out by a statement to the effect that the ditch, though usually on the south side, is occasionally on the north side.[1] Attempts have been made to trace the work west of Pinner, and by way of Haydon Hall, Ruislip, Ickenham and Swakeleys to Uxbridge Common.[2] An eastward line has also been suggested, passing through Bentley Priory, Elstree and Barnet to Potter's Bar.[3] Such attempts and theories must be treated with caution, and neither the eastward nor the westward continuations have been definitely proved. Photography from the air would probably settle the matter.

According to Mr. Hadrian Allcroft, our chief authority on earthworks, the name Gryme or Grim may be derived from *gruma*, a boundary (a most interesting suggestion), or from *grim*, a goblin—hence, the devil.[4] The latter seems by far the most probable derivation, and is confirmed, both by the unmistakable sense of the prefix *grim* in other cases and by the popular tendency everywhere to ascribe ancient works to the powers of darkness. Gryme's Dyke probably received its present name in Saxon times, but we cannot possibly regard it as 'one of the most ancient of all the remains of the Saxon period in Middlesex'.[5] Dyke is a word applied indifferently to a ditch or to a bank made of material thrown up from a ditch, or to both together. Guest was no doubt right in suggesting a pre-Roman origin, though he was not necessarily so when he said that the dyke 'must have been a boundary of the Catuvellauni'. We may be fairly certain that the work is prehistoric, and it is not unreasonable to suppose

[1] *Antiq. Journ.*, I, p. 235. [2] *Ibid.*, III, p. 66. [3] *Ibid.*, I, p. 235.
[4] H. Allcroft, *Earthworks of England*, p. 515.
[5] *Trans. Lond. and Msx. Arch. Soc., New Ser.*, I, p. 482.

that it belongs to the Early Iron Age, though we have as yet no direct evidence concerning its period.

The earthworks in Stanmore, to which reference has been made, are below Brockley Hill, west of the Watling Street and north of the main road between Stanmore and the Edgware Road, They consist of a small banked enclosure, about 100 yards in width, with high ramparts, and traces of what seem to be embankments running thence towards the Watling Street. Their date and purpose are both uncertain ; the Ordnance Survey does not even mark them as antiquities, and we shall perhaps do well to display the same reticence. At the same time, this is all a part of the mystery of Brockley Hill, and we must again repeat our hope that future research will give us a better understanding of the early history of that neighbourhood.

Middlesex has, or had, some other earthworks of indeterminate date which should be noted here, but we must not place too much reliance on the records of imaginative antiquaries like Stukeley, to whom a bank or ditch was evidence of ' Caesar's camp ', while a mere mound sufficed for the building of a castle. We must also remember that many moated earthworks are of Medieval date, or even more recent.

In private grounds at Old Park, Enfield, are the remains of a circular bank or ditch ; and about 3 miles to the north-west of this, in the wood of Trent Park and close to the road which runs across the north side of the wood, there is a rectangular moated work which may conceivably be Roman. Stukeley identified as the work of Caesar a square earthwork south of the Bath Road and about a mile west of Cranford : it has been ploughed flat in recent years. Works at Osterley Park and at Twickenham have also been obliterated, nor can we now recognize the ' Prospect of Caesar's Camp at Sheparton ' as it appeared to the ingenious author of the *Itinerarium Curiosum* on October 28th, 1723.[1] Half a mile north of the Great Western Station at Acton were the remains of what might

[1] *Op. cit.*, II, Pl. LVIII.

have been a camp, but these, too, have now disappeared. At Hillingdon, a clearly marked embankment of curving and irregular outline starts near the eastern boundary of the churchyard and runs in a south-easterly direction for a distance of about 300 yards : its date cannot be proved, but it has the appearance of a prehistoric work. This, which is ignored by the *Victoria County History*, appears to be the largest earthwork of its kind in Middlesex.

Moll, the geographer, in his *New Description of England and Wales*, published in 1724, speaks of ' an enclosed Ground ' at Shepperton, ' called Warre-Close, where have been dug up Spears, Swords, etc., with Great Numbers of Men's Bones ' ; and he adds that ' Part of a *Roman* Camp is still visible at a little Distance to the West.' [1] It is impossible to trace these works or discoveries at the present day, but the camp is probably the one observed, or imagined, by Stukeley. It would be interesting to know whether the remains found at ' Warre-Close ' were those of burials in a Saxon cemetery—a conjecture which has a certain likelihood when we bear in mind the discoveries made at Shepperton in later times. Other Roman camps were believed to have existed near Staines, but, as far as we know, without the support of evidence. There is certainly no trace of one of Stukeley's many Caesarian camps at Greenfield Common.

There is no doubt that many tumuli or mounds, of uncertain period and purpose, have been levelled here, as elsewhere, in the course of building or agricultural work. It is useless, now, to guess what such mounds may or may not have been, and we should certainly hesitate before adopting the view that some of them were Roman boundary-marks—a view which does not bear the test of critical examination. The spade alone can reveal the true nature of such remains ; and even excavation is sometimes barren of conclusive results.

It was with the idea of solving one of these mysteries that the London County Council asked Sir Hercules Read, in 1894, to open the tumulus on Hampstead Heath. This

[1] *Op. cit.*, p. 117.

mound is a familiar landmark on the slope overlooking the Highgate ponds, to the north of Parliament Hill. It is a circular mound, sloping on the north and south to a nearly level base, and surrounded by a ditch (now but faintly indicated) 16 to 20 feet wide. On two sides there was a bank or 'rib' which crossed the ditch. A group of tall fir-trees, said to have been planted about 1790, covered the top of the mound at the time of the excavation. The present height at the centre is about 10 feet, and the mound is not exactly circular: its diameter, taken from the outside of the ditch, is about 135 feet from east to west and about 145 feet from north to south. We need not concern ourselves with the legend which claims this tumulus as the burial-place of Boudicca (Boadicea), and the evidence, as we shall see, leaves us in some doubt as to whether it was a burial place at all, and fails altogether to settle the question of its period and meaning.

It was discovered that the mound was made of artificially mixed materials, and towards the centre were 'black masses' revealing the presence of charcoal at a depth of 3 to 5 feet from the upper surface. In the centre was 'an irregular hole or pocket . . . full of charcoal, apparently vegetable, from the tiny fragments of carbonized wood remaining in it, but it contained nothing like fragments of bone.'[1] Burials are sometimes placed below the original ground level under mounds of this sort, and trial pits were therefore dug near the centre, but revealed only the undisturbed London Clay. It was proved, however, that the mass of charcoal lay upon the ground level. An addition had been made on the north-east side of the mound.

'This was evident from the presence of a black layer that extended for some distance south and north. At the centre of the mound it was about 2 feet from the surface, and here the brick red appearance of the clay and the quantity of burnt matter suggested that either fires had been burnt on the spot habitually for some length of time . . . or that the place had been occasionally used as a beacon. In this blackened stratum were found stems and bowls of old tobacco pipes, of probably the beginning of the last century.'[2]

[1] *Proc. Soc. Antiq.*, XV, p. 240. [2] *Loc. cit.*

The ditch seemed to be modern : in fact, a local resident told Sir Hercules Read that he remembered when it was dug. The ' ribs ', too, appeared to be of recent date, for one of them contained tobacco pipes and bits of Chinese porcelain and Delft ware.

Without seeking to account for these curious additions, Sir Hercules Read came to the rather surprising conclusion

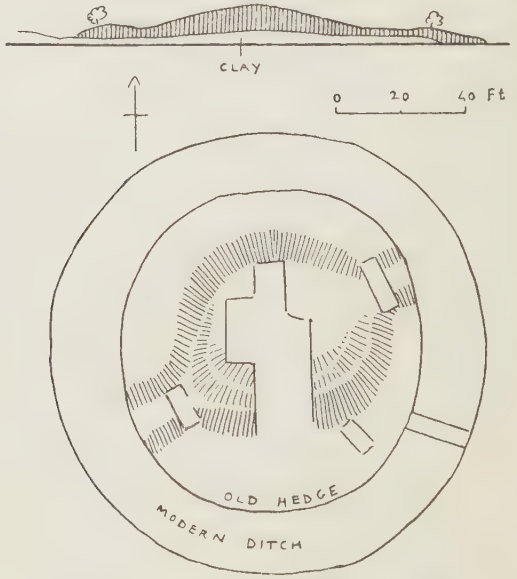


FIG. 40.—TUMULUS ON HAMPSTEAD HEATH

that the tumulus was ' very probably an ancient British burial mound of the early-bronze period '.[1] There seems to be absolutely nothing to justify such a conclusion. The funerary use of the mound was not proved, and the only datable relics could not have been earlier than the reign of George III.

At the present day the mound is partly concealed by a thick hedge of thorns and young elders, and is crowned

[1] *Loc. cit.*

by a clump of small fir-trees, so that it appears from a distance like a circular plantation. It serves as an occasional rubbish dump and burning ground (perhaps that has always been the case), as well as a depository for goal-posts.

Large blocks of stone (if we except a few occasional sarsens) do not occur naturally within our district, where the entire geological surface is composed of clays, loams and gravels. Any large isolated fragment of stone—other than a sarsen—must therefore imply human agency, and is thus an object of some interest. One such fragment, at any rate, has been looked upon with curiosity or with sentiment by the Londoners of many generations, and by some superstitiously connected with the fate and well-being of the City. London Stone, a rough and grimy piece of oolite, now stands against the south wall of St. Swithin's Church in Cannon Street, encased in a sort of stone box or shrine, partly absorbed in the stonework of the church wall, and protected by an iron grill (Pl. XI). The careful, almost religious preservation of a mere block of oolite, uninscribed, without decoration, and having no history, implies traditional respect ; but we have no facts which can throw a clear light upon the origin of London Stone.

In 1742 the stone was moved from the middle of the street, where it had previously stood, and placed on the kerb on the north side, and in 1798 it was placed against the church wall, partly blocking one of the windows. From this position it was later moved a few feet along the church, and enclosed in the peculiar stone shrine in which it is now standing. The grill was added in 1869. It has been assumed that the stone was a Roman milliarium or central milestone, marking the spot from which distances were reckoned ; and many writers, from Camden onwards, have held this view. Wren, however, ' was of opinion, by reason of the large Foundation, it was rather some more considerable Monument of the *Forum* ; for in the adjoining Ground on the South Side (upon digging for Cellars after the great Fire) were discovered some *tessellated* Pavements, and other extensive Remains of *Roman* Work-

manship, and Buildings.'[1] By 'large foundation' he probably refers to the depth of the stone below ground, and it is likely that what is now preserved is only a fragment of the original monolith. Stow speaks of it as 'fix'd in the Ground very deep, fastened with Bars of Iron'. The first direct reference to it is apparently that in Holinshed's Chronicle, from which Shakespeare[2] borrowed the episode of Jack Cade striking his staff upon the stone. An unsubstantial theory has it that the stone marked the site of the house of Fitzaylwin, a mythical 'Lord of London', and according to the *Liber Albus*,[3] the owner of the house in the thirteenth century called himself John de Londonstone.[4] It has also been suggested that it may have been a prehistoric monument.

We are inclined to suppose that London Stone is of post-Roman date, and we think that one of the principal factors in determining its age—the change of ground-level since Roman times—has not been sufficiently taken into account. The Roman ground-level appears to be at least 15 feet below the present level of Cannon Street. It must also be remembered that oolite is a soft, friable stone, and crumbles away, if exposed to the weather, with extreme rapidity. A prehistoric origin seems highly improbable, to say the least of it. The stone may conceivably have served some purpose in Romano-British times; on the other hand, it may be no earlier than the Medieval period. At the present day it has a dirty, neglected and most unsuggestive appearance; and it is probable that its very existence is unknown to the majority of Londoners.

The problem of date is again raised by the numerous stakes or piles which are found in the Thames.

Many of the older antiquaries, to whom tradition and evidence were much the same thing, held that the piles at Coway or Cowey Stakes, at Shepperton, were those which were placed in the stream as obstacles to the crossing

[1] *Parentalia*, pp. 265–6.
[2] *Henry VI*, 2nd Part, Act IV, Sc. VI.
[3] Camden Soc. ed., p. 336.
[4] *Trans. Lond. and Msx. Arch. Soc.*, V, p. 336.

LONDON STONE IN 1820
From a Print in the Guildhall Library

of Caesar. Coway Sale is in the parish of Shepperton, but actually on the Surrey side of the Thames, and the stakes crossed the bend of the river which is immediately south of the Walton-Shepperton road. The fact that they crossed the river from bank to bank was noted by that ingenious antiquary, Mr. Daines Barrington, in 1768, and he guessed shrewdly that they might be the remains of fishing weirs.[1] These weirs have existed in the Thames from an early period, and an order for the destruction of some of them was included in the Magna Charta. Gough, indeed, asserted with reason that 'the direction of *Cowey Stakes* across the river from South to North, and not along the Middlesex bank, is decisive against their having served for any other purpose than to make a fishing wear'.[2] Defoe was frankly sceptical, and could see 'nothing at all, but the meer Place, said to be so'.[3]

It is sufficiently obvious that stakes crossing the stream would offer no obstacle to people wishing to ford across, but would rather assist them; and Sir Montagu Sharpe is possibly right in conjecturing that the name Cow-way indicates a bridge or passage for cattle. Other stakes, also crossing the river, have been observed at Hampton Court.[4]

Those who like to guess where Caesar crossed the Thames will find that Sir Montagu Sharpe, in his *Antiquities of Middlesex*, has made out a good case for the stumps found in the river at Brentford. In this district there are, or were, plenty of them. It was stated by Mr. B. Hanson, a contractor, that, during work for the Thames Lighterage Company at Brentford in 1881, he found three lines of oak piles at a depth of 10 feet below the top of the bank. These, he said, were bound by wattles, and between them were sharpened stakes pointing outward at an angle of 45 degrees, and kept in position by heavy stones. If this

[1] *Arch.*, II, p. 144. Barrington was one of Lamb's 'Old Benchers'.
[2] Camden, ed. 1806, II, p. 88.
[3] *Tour*, ed. G. D. H. Cole, 1927, p. 163.
[4] *Journ. Anthrop. Inst.*, VII, p. 102.

information is correct, it seems likely enough that the remains were those of defensive works; but apparently no photographs were taken, no records made, and no finds preserved. According to Sir Montagu Sharpe, more than 266 stumps or piles were drawn out of the river between Kew Bridge and Isleworth Eyot. They had become a menace to river traffic, and were pulled up to clear the channel. It is impossible to say when and for what purpose these stakes were planted, and since the objects found among them comprise relics of all periods from the Neolithic to the time of the Commonwealth, nothing can be proved by associated finds. In all probability, many of these piles are the remains of groins or weirs of comparatively recent date, and those in continuous lines parallel to the shore may have been driven in to retain or support the bank—a practice which is frequent enough.

There can be no question of the antiquity of the 'dug-out' boats or 'canoes' which have been found in the Thames and the Lea, although their exact period is uncertain. At least four of these have been discovered in our district, all of them, apparently, resembling each other in shape and size.

Sir Montagu Sharpe says that 'a rude canoe cut out of a solid block of oak was discovered at Shepperton in 1812'.[1] In June, 1877, another specimen was found by a boatman near Hampton Court, and was most fortunately seen and accurately described by Colonel Lane Fox (Pitt-Rivers).[2] Parts of it were missing, including the whole of the starboard side. It was flat-bottomed, the bottom rising slightly at each end, with a rounded bow, straight sides, and the top level from end to end. The total length was about 14 feet, the greatest interior width 2 feet 6 inches, and the sides and bottom were only about 2 inches thick. A raised knee or ridge, carved out of the solid, gave additional strength at the stern end. Near the bow there was a circular hole in the side, about 2 inches from the top edge and 2 inches in diameter.

[1] *Antiqs. of Msx.*, p. 2. [2] *Journ. Anthrop. Inst.*, VII, p. 102.

These particulars and dimensions correspond very closely with those of another dug-out found in the Lockwood Reservoir between Tottenham and Walthamstow in 1900. The length of this (now preserved at the British Museum) is 14 feet 10 inches, and the greatest breadth 2 feet 4 inches. Both ends are rounded, the sides are almost straight, and ribs are let in near the stern and the bow. On the starboard quarter, a hole is drilled into the top edge vertically, and there is a similar hole at the bow on the same side. A piece of sharpened oak was found lying underneath; and at no great distance from it, ' in practically the same stratum ', were fragments of Roman pottery and an iron spear-head.[1]

A fourth dug-out, found between the eyot below Kew Bridge and the Mortlake shore, is in the London Museum. It is a well-preserved specimen, with square ends, straight sides, and a partition or strengthening-piece, cut out of the solid, amidships.

Boats of the simple dug-out type date from the late neolithic period : those which we have described, however, are certainly not of that period, and may be tentatively assigned to the Early Iron Age (probably La Tène III) or to Romano-British times. The evidence of the Roman pottery and iron spear-head mentioned above in connection with the dug-out found in the Lockwood reservoir is obviously of much importance ; and so also is the fact that all the recorded specimens from this area seem to resemble each other closely in type.

In conclusion, something must be said of the many human skulls which have been found in the Thames, and elsewhere, within our boundaries.

Certainly the most interesting of these is the fragment known as ' the London Skull ' (Fig. 41), which was found in 1925 during work on the foundations of Lloyd's new building in Leadenhall Street. The fragment, which was broken in four pieces by the blow of a pick, lay at a depth of 42 feet from the surface, and consists of the greater part of the sides, top and back of a skull. It was found

[1] *Essex Nat.*, XII, p. 163 ; *Antiq. Journ.*, VI, p. 136 and fig. 7.

in blue clay, and in a deposit which was considered to form part of the Low Terrace, containing the bones of mammoth, woolly rhinoceros, ox and red deer. The fragment is completely mineralized and of a dark reddish-brown colour, which would seem to imply its derivation from a gravel bed. In the opinion of Professor G. Elliot Smith, the age at death of the individual thus represented was probably between forty and fifty years, and he conjectures from the smoothness of contour and surface that the original owner was probably a woman.[1] The cranial vault is low, the skull is compressed or flattened, and we are naturally drawn to a comparison with Neanderthal specimens. But here we should observe discretion.

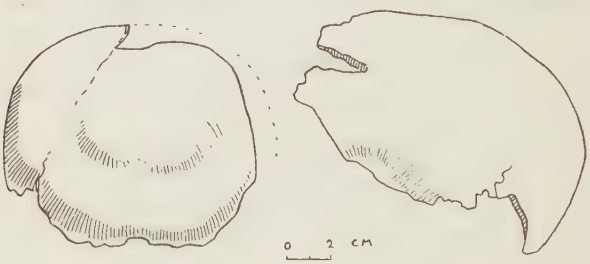


FIG. 41.—THE LONDON SKULL

Further tests and a more searching examination are required before any attempt can be made to demonstrate affinity with the Neanderthal or any other type, and it is possible that an extremely early date may be eventually suggested. Sir Arthur Keith informs the writer that he considers comparison with the famous Piltdown skull (the most ancient human relic discovered in Britain) by no means out of the question. In any case, the London skull may be taken as the earliest fragment of humanity which has been found on the site of London, and there need be no hesitation in assigning it to a remote period of the Stone Age. It is preserved in the anatomical

[1] *Nature*, CXVI, p. 678. Professor Elliot Smith is preparing a monograph, in which he will give his latest views on the subject.

museum of University College, Gower Street, and there is a cast in the Museum of the Royal College of Surgeons.

We have already spoken of the skulls found in the City in the old bed of the Walbrook. These have been insufficiently studied as a group, but they are certainly not earlier than the Romano-British period, and in all probability belong without exception to that period. The same may be said of many other skulls found in different parts of the City. We cannot give credit to the statement that a skull was excavated from a depth of 36 feet when a sewer was being made in Watling Street (between Cheapside and Cannon Street) at some date prior to 1857, and placed in the Royal College of Surgeons,[1] and Sir Arthur Keith tells the writer that he has no knowledge of any such skull in the collection there.

A very large number of skulls, or fragments of them, have been dredged at various times out of the Thames, especially in the neighbourhood of Kew, and between that place and Mortlake. These again have received but little scientific attention; we have seldom any account of the conditions in which they were found, and we have no tabulated data in regard to them. The Royal College of Surgeons has a large collection of these skulls. They represent the riverside population of all periods from neolithic times to the Middle Ages, and we should certainly be justified in regarding almost any one given specimen as of doubtful date. It seems likely, however, that a very considerable number of them can be assigned to the middle and later Bronze Age—periods which, as we have seen, are amply represented by archaeological finds in the river. Here, as in other departments of study, the greater exactness of modern method, in comparison with that of the last century, prevents us from recognizing 'types' of this or that period at a glance. Although it cannot be regarded as an infallible criterion of antiquity, we may note that the more ancient of the river skulls are stained a rich black-brown or chocolate colour, while the surface of the bone is often highly polished. But, as we have

[1] Syer Cuming in *Arch. Journ.*, IV, p. 237.

frequently had occasion to notice, relics of different and widely separated periods are often mixed up together in the river bed. Mr. Syer Cuming recorded the fact that, during work on the suspension bridge at Chelsea, many skulls were found scattered from the Middlesex shore to about the middle of the river, and with these were associated weapons both of bronze and of iron.[1] Now bronze swords and iron spear-heads are not contemporaneous, and we are probably right in assuming that the skulls represented people of different periods, and that skulls and weapons alike had been fortuitously collected in that place by the action of the stream and the nature of its bed. (A recent book makes the strange error of associating swords of the middle Bronze Age with the Battersea shield, and of taking both together as evidence of warfare in Romano-British times.)

The top of a skull from Sunbury Reach, now in the Royal College of Surgeons, was found in the river on a level which contained the bones of *Bos primigenius*, reindeer and horse.

In 1890, fifteen skulls from the Thames were exhibited at the Anthropological Institute (now the Royal Anthropological Institute) and described by Dr. J. G. Garson.[2] Of these, eight were found near Kew, three between Kew and Mortlake, two at Twickenham and two near Hammersmith. Most of them were badly broken, but two or three were in good condition, and it was clear that the types were extremely varied. According to Mr. G. F. Lawrence (who presented them to the Natural History Museum at South Kensington) they came from deposits lying immediately upon the London Clay, and apparently from depths of from 10 to 15 feet below the bed of the river. Other skulls from Chiswick and Mortlake are in the Museum of the Royal College of Surgeons.

An interesting trepanned skull in the London Museum is worthy of note. The practice of trepanning—removing a small part of the cranium of a living subject—was known

[1] *Arch. Journ.*, IV, p. 237.
[2] *Journ. Anthrop. Inst.*, XX, p. 20.

in prehistoric times from the neolithic period. This operation was performed with flint flakes or knives, and performed with a good deal of skill. (See a remarkable series of exhibits in the Wellcome Historical Medical Museum in Wigmore Street.) Its object, if we base our inference on the known purpose of ritualistic surgery among primitive folk of modern times, was the release of an evil spirit who resided in the brain and was the cause of intolerable headaches and of undesirable or dangerous conduct. The London Museum specimen, which is of uncertain date, comes from the Thames at Hammersmith. Several well-preserved skulls are in the same collection, but none can be confidently assigned to a given period, though most are almost certainly pre-Roman. Among them is the upper part of a skull which appears to have been roughly cut away from the rest, and may possibly have been used as a bowl or goblet. This fragment was found at Mortlake, and has many parallels, dating from the Stone Age onwards.

It is to be hoped that a serious attempt will some day be made to describe in detail and to classify the human remains which have been found in the river. The results of such an attempt would be remarkably interesting, and the materials, though scattered, are already sufficiently numerous. It is also to be hoped—and such hopes may be extended to cover the whole field of archaeology—that the circumstances of all future finds will be carefully and exactly recorded, and the reasonable claims of science more fully and more generally understood. Let it be remembered, that the science of archaeology depends as much upon the alert and intelligent co-operation of the ordinary man as upon the specialized work of the expert.

For Further Reading : H. Allcroft, *Earthworks of England*, 1908 ; C. E. Fox, *Note on Monoxylous Craft* (i.e., dug-out canoes), in *Antiquaries' Journal*, VI, 1926, p. 122 ; *Victoria County History, Middlesex*, vol. II, 1911.

ARCHAEOLOGICAL GAZETTEERS

I. INNER LONDON AREA

ALDERSGATE : Roman town wall (p. 152), *Arch.*, XXX, p. 522 ; LII, p. 609 ; *Arch. Journ.*, LX, p. 144 ; *V.C.H. Lond.*, I, p. 63 ; *R.C.H.M. Rom. Lond.*, p. 91 ; J. E. Price, *Bastion of London Wall*, p. 19 ; *Builder*, 1888, I, p. 315.

ALDGATE : Roman masonry, etc. (p. 159), *Gent. Mag.*, 1750, p. 591 ; *Journ. Brit. Arch. Assoc.*, XXXIII, p. 124 ; XXXVIII, p. 332 ; XLI, p. 86 ; *V.C.H. Lond.*, I, p. 53 ; *R.C.H.M. Rom. Lond.*, pp. 97, 157.

ALL HALLOWS, LONDON WALL : Roman town wall, bastion and culverts (p. 151), *Arch.*, LX, p. 197 ; LXII, p. 271 ; *V.C.H. Lond.*, I, pp. 58, 59 ; *R.C.H.M. Rom. Lond.*, pp. 86, 103, pl. 38, figs. 12, 13, 27.

AUSTIN FRIARS : Romano-British Castor and Upchurch ware pottery and other finds, *Journ. Brit. Arch. Assoc.*, XLVI, p. 159 ; XLVII, p. 88 ; *Proc. Soc. Antiq.*, XIII, p. 162 ; *V.C.H. Lond.*, I, p. 87.

BANK OF ENGLAND : Roman pavement and other remains (p. 161), *Gent. Mag.*, 1807, I, p. 415 ; *Arch.*, XXXIX, p. 491 ; *V.C.H. Lond.*, I, p. 87 ; *R.C.H.M. Rom. Lond.*, pp. 106, 107, 155, 176, pls. 38, 47, fig. 29 ; C. R. Smith, *Illus. Rom. Lond.*, p. 56 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 181. [British Museum.]

Neolithic mace-head (p. 75) ; *Antiq. Journ.*, VIII, p. 518.

BEVIS MARKS : Roman town wall and bastion (p. 151), *Journ. Brit. Arch. Assoc.*, XXXVII, p. 86 ; XXXVIII, p. 132 ; *Antiq. Journ.*, VII, p. 518 ; *V.C.H. Lond.*, I, p. 88 ; *R.C.H.M. Rom. Lond.*, pp. 85, 100.

Other Romano-British finds, *Gent. Mag.*, 1793, I, p. 416 ; *Journ. Brit. Arch. Assoc.*, V, p. 90 ; *V.C.H. Lond.*, I, p. 88 ; C. R. Smith, *Retrospections*, II, p. 206 ; *Illus. Rom. Lond.*, p. 47, pl. 5 ; *Cat. Lond. Antiq.*, I and pl.

BILLINGSGATE : Roman piles (p. 162), *V.C.H. Lond.*, I, p. 88 ; *R.C.H.M. Rom. Lond.*, p. 107 ; J. E. Price, *Rom. Antiq. Nat. Safe Deposit Co.*, p. 107.

BISHOPSGATE : Roman burials (p. 168), *Journ. Rom. Studies*, XII, p. 279 ; *R.C.H.M. Rom. Lond.*, p. 159.

BLOMFIELD STREET : Roman burials (p. 170), *V.C.H., Lond.*, I, p. 9 ; *R.C.H.M. Rom. Lond.*, p. 161.

Roman pile-structures (p. 163), *R.C.H.M. Rom. Lond.*, pp. 145, 147, figs. 58, 59, 60. *Arch. Journ.*, LX, pp. 137–204, 313–335.

BOW, see OLD FORD.

BRICKHILL LANE : Early Iron Age 'spoon' (p. 132), *Arch. Journ.*, XXVI, p. 54 ; *Arch.*, LIII, p. 114 ; *Brit. Mus. Iron Age Guide*, p. 148 ; J. Déchelette, *Manuel* II, 3, p. 1276 ; R. Allen, *Celtic Art*, p. 119. [British Museum.]

BROAD STREET : Roman tessellated pavement, *Arch.*, XXXVI, p. 203 ; *Arch. Journ.*, XI, p. 184 ; *Proc. Soc. Antiq.*, I Ser., III, p. 114 ; *V.C.H. Lond.*, I, p. 92 ; *R.C.H.M. Rom. Lond.*, p. 108, pls. 39, 48 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 187 ; C. R. Smith, *Illus. Rom. Lond.*, p. 54.

Roman cremated burials, *Journ. Brit. Arch. Assoc.*, XXVIII, p. 171 ; *R.C.H.M. Rom. Lond.*, p. 185.

BUCKLERSBURY : Roman tessellated pavement (p. 161), *Proc. Soc. Antiq.*, II Ser., V, p. 11 ; *Arch. Journ.*, LX, p. 171 ; *Illus. Lond. News*, May 29, 1869 ; *V.C.H. Lond.*, I, p. 93, fig. 40 ; *R.C.H.M. Rom. Lond.*, p. 109, pls. 41, 42, fig. 31 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 195 ; J. E. Price, *Descr. Rom. Tess. Pav. Bucklersbury*, 1870. [Guildhall Museum.]

BUSH LANE : Roman structural remains (p. 160), *Arch.*, XXIX, pp. 156, 402 ; *Trans. Lond. and Msx. Arch. Soc.*, III, p. 213 ; *V.C.H. Lond.*, I, p. 93 ; *R.C.H.M. Rom. Lond.*, p. 110, fig. 32 ; W. Maitland, *Hist. of Lond.*, I, p. 17 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 176.

CAMOMILE STREET : Roman bastion and other remains (p. 155), *Gent. Mag.*, 1807, I, p. 415 ; *Arch.*, LII, p. 613 ; *Arch. Journ.*, XXXIV, p. 131 ; *Journ. Brit. Arch. Assoc.*, XXXIII, pp. 490, 503 ; *V.C.H. Lond.*, I, p. 94 ; *R.C.H.M. Rom. Lond.*, pp. 100–103, pls. 7, 11, 15, 16, 17, figs. 25, 26 ; T. Allen, *Hist. of Lond.*, I, p. 25 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 177 ; J. E. Price, *On a Bastion of Lond. Wall at Camomile Street.*

CANNON STREET : Roman structural remains (p. 161), *Proc. Soc. Antiq.*, I Ser., II, p. 93 ; *Arch. Journ.*, IX, p. 297 ; *Journ. Brit. Arch. Assoc.*, I, p. 254 ; *Illus. Lond. News*, 1852, I, p. 308 ; *V.C.H. Lond.*, I, p. 95 ; *R.C.H.M. Rom. Lond.*, p. 111, pl. 20 ; W. Besant, *Early London*, 1908, p. 133.

Roman Bath (p. 162), *Arch.*, LX, p. 214 ; *R.C.H.M. Rom. Lond.*, p. 111, fig. 33.

London Stone (p. 277), *Arch. Journ.*, XXXIV, p. 98 ; *Trans. Lond. and Msx. Arch. Soc.*, V, p. 282 ; *Arch.*, XXXIII, p. 114 ; *V.C.H. Lond.*, I, p. 34 ; *R.C.H.M. Rom. Lond.*, p. 111 ; Wheatley and Cunningham, *Lond. Past and Present*, II, p. 433 ; C. Wren, *Parentalia*, p. 265 ; J. Stow, *Survey* (ed. Strype), II, p. 119.

CHEAPSIDE : Hoard of Anglo-Saxon pewter ornaments (p. 262), *V.C.H. Lond.*, I, p. 160 ; *Guildhall Mus. Cat.*, p. 119, pl. LIV. Leather scabbard, Viking period (p. 261), *Antiq. Journ.*, VIII, p. 526. [Guildhall Museum.]

CHRIST'S HOSPITAL, see **POST OFFICE, GENERAL.**

CLAPTON, LOWER : Roman sarcophagus (p. 172), *Arch. Journ.*, 1874, p. 352 ; *Trans. Lond. and Msx. Arch. Soc.*, III, p. 196 ; *V.C.H. Lond.*, I, p. 18 ; *R.C.H.M. Rom. Lond.*, pp. 164, 173, pl. 57. [Guildhall Museum.]

CLEMENT'S LANE : Roman remains (glass factory ?), *Arch.*, XXIX, p. 272 ; *Journ. Brit. Arch. Assoc.*, XXXIV, pp. 134, 254 ; *Trans. Lond. and Msx. Arch. Soc.*, III, p. 100 ; *R.C.H.M. Rom. Lond.*, p. 113.

COAL EXCHANGE, see **THAMES STREET, LOWER.**

COLLEGE STREET, WESTMINSTER : Roman house (p. 216), *Gent. Mag.*, 1839, II, p. 636 ; *Arch. Journ.*, XLII, p. 274 ; *V.C.H. Lond.*, I, p. 135 ; *R.C.H.M. Rom. Lond.*, p. 114 ; C. R. Smith, *Illus. Rom. Lond.*, p. 59.

COOPER'S ROW : Part of Roman town wall (p. 153), *Arch.*, XL, p. 297 ; LXIII, p. 259 ; *V.C.H. Lond.*, I, p. 51 ; *R.C.H.M. Rom. Lond.*, p. 83.

CORNHILL : Roman structural and other remains (p. 161), *Proc. Soc. Antiq.*, II Ser., XIV, p. 6 ; *Arch.*, XXIX, p. 273 ; *V.C.H. Lond.*, I, p. 99 ; *R.C.H.M. Rom. Lond.*, pp. 115, 116, pl. 43, figs. 35, 36 ; C. R. Smith, *Illus. Rom. Lond.*, p. 97 ; J. Déchelette, *Vases Ornés de la Gaule Rom.*, II, p. 187.

COUNTY HALL, WESTMINSTER, Site of : Ship ascribed to Romano-British period (p. 216), Riley and Gomme, *Ship of the Roman Period*, L.C.C. ; *R.C.H.M. Rom. Lond.*, p. 33, note. [London Museum.]

DOWGATE HILL : Gold enamelled brooch, Anglo-Saxon period (p. 261), *Proc. Soc. Antiq.*, II Ser., II, p. 313 ; XX, p. 65 ; *V.C.H. Lond.*, I, p. 158, with plate ; C. R. Smith, *Cat. Lond. Antiq.*, p. 104, with plate ; *Brit. Mus. Anglo-Saxon Guide*, p. 101.

EASTCHEAP : Roman road and masonry, *Gent. Mag.*, 1833, I, p. 69 ; II, p. 421 ; 1836, I, p. 135 ; *Arch.*, XXV, p. 602 ; *V.C.H. Lond.*, I, p. 100 ; *R.C.H.M. Rom. Lond.*, p. 116, fig. 37 ; C. R. Smith, *Reminiscences*, I, p. 191.

FENCHURCH STREET : Roman structural remains (p. 161), *Gent. Mag.*, 1834, I, p. 156 ; *Arch.*, XXIX, p. 153 ; *Journ. Brit. Arch. Assoc.*, XXII, p. 316 ; XXIII, p. 205 ; *Proc. Soc. Antiq.*, XIX, p. 209 ; *V.C.H. Lond.*, I, pp. 37, 101 ; *R.C.H.M. Rom. Lond.*, p. 117, pl. 40, fig. 38 ; *Brit. Mus. Guide Rom. Brit.*, pp. 60, 128, 129 ; C. R. Smith, *Illus. Rom. Lond.*, p. 58 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 191.

FETTER LANE : Viking sword-handle (p. 256), *Proc. Soc. Antiq.*, XXIII, p. 302 ; *Brit. Mus. Anglo-Saxon Guide*, p. 93 ; *V.C.H. Lond.*, I, p. 154, with plate. Other finds, see Index.

GARRICK STREET : Gold finger-ring, Saxon period (p. 232), *V.C.H. Lond.*, I, p. 157, with plate ; *Brit. Mus. Anglo-Saxon Guide*, p. 116.

GOLDSMITHS' HALL : Roman altar (p. 177), *Gent. Mag.*, 1831, I, pp. 390, 452 ; *Arch.*, XXIV, p. 350 ; *V.C.H. Lond.*, I, pp. 102, 103 ; *R.C.H.M. Rom. Lond.*, pp. 43, 120, pl. 12 ; C. R. Smith, *Illus. Rom. Lond.*, p. 48 ; J. W. Archer, *Vestiges of Old Lond.*, pl. 9. [Goldsmiths' Hall.]

GRACECHURCH STREET : Roman structural remains, *Arch.*, XXIX, p. 154 ; *V.C.H. Lond.*, I, p. 103 ; *R.C.H.M. Rom. Lond.*, p. 120 ; R. Kelsey, *Descr. of Sewers*, p. 100 ; *Brit. Mus. Guide Rom. Brit.*, p. 86 ; *Antiq. Journ.*, II, p. 140 ; *Journ. of Rom. Studies*, XI, p. 218 ; *Trans. Lond. and Msx. Arch. Soc.*, New Ser., IV, p. 339.

Fragment of Roman bronze statue (p. 178), *Proc. Soc. Antiq.*, II Ser., X, p. 93 ; *Journ. Brit. Arch. Assoc.*, XXIV, p. 76 ; *Guildhall Mus. Cat.*, p. 70, No. 21.

GRAY'S INN LANE : First palaeolith discovered in England (p. 29), J. Leland, *Collectanea* (ed. Hearne), I, p. lxiv ; J. Evans, *Stone*, 2nd ed., p. 581 ; C. Lyell, *Antiq. of Man*, p. 352 ; Lord Avebury, *Prehistoric Times*, 4th ed., p. 352 ; Boyd Dawkins, *Early Man in Britain*, 1880, p. 156 ; *Brit. Mus. Stone Age Guide*, pl. I, pp. 6, 44.

HART STREET, CRUTCHED FRIARS : Roman sculptured stone (p. 176), *Arch.*, XLVI, p. 177 ; *Journ. Brit. Arch. Assoc.*, I, p. 247 ; II, p. 244 ; *V.C.H. Lond.*, I, fig. 46 ; *R.C.H.M. Rom. Lond.*, p. 45, pl. 6 ; C. R. Smith, *Illus. Rom. Lond.*, p. 33 ; J. W. Archer, *Vestiges of Old Lond.*, pl. 10, fig. 3. [Guildhall Museum.]

HAYDON SQUARE, MINORIES : Roman stone sarcophagus (p. 170), *Journ. Brit. Arch. Assoc.*, IX, p. 161 ; *Proc. Soc. Antiq.*, I Ser., III, p. 17 ; *V.C.H. Lond.*, I, pp. 17, 104 ; *R.C.H.M. Rom. Lond.*, p. 157, pls. 57, 58 ; C. R. Smith, *Illus. Rom. Lond.*, p. 45 ; *Brit. Mus. Guide Rom. Brit.*, p. 16. [British Museum.]

HOLBORN : Roman burials and other remains ; *Gent. Mag.*, 1807, I, p. 417 ; 1833, I, p. 549 ; *Arch.*, XXIX, p. 146 ; *Trans. Lond. and Msx. Arch. Soc.*, New Ser., I, p. 258, with plan ; *V.C.H. Lond.*, I, p. 104 ; *R.C.H.M. Rom. Lond.*, p. 164 ; Stow, *Survey*, ed. Strype, II, App. V, p. 23 ; O. Morgan, *Rom. Brit. Mosaic Pavements*, p. 176.

HYDE PARK : Ossulstone or Ossulston Stone (p. 208), *Trans. Lond. and Msx. Arch. Soc.*, IV, p. 62 ; *V.C.H. Lond.*, I, pp. 62, 136 ; *R.C.H.M. Rom. Lond.*, pp. 55, 147.

Palaeolithic flint implements, *Antiq. Journ.*, VI, p. 73.

KENSINGTON : Bronze founder's hoard (p. 111), *Proc. Soc. Antiq.*, II Ser., III, p. 232 ; J. Evans, *Bronze*, pp. 158, 174, 401, 450. [British Museum.]

Neolithic flint axes, p. 73.

KINGSWAY : Bronze founder's hoard, p. 111. [London Museum.] Fragment of Roman bronze statue (p. 178), *R.C.H.M. Rom. Lond.*, pl. 3. [British Museum.]

KING WILLIAM STREET : Roman structural remains, *Gent. Mag.*, 1834, I, p. 315; 1835, I, p. 82; *Arch.*, XIX, p. 172; XXVII, p. 140; LXVI, p. 254; LXXI, p. 60; *V.C.H. Lond.*, I, p. 106; *R.C.H.M. Rom. Lond.*, pp. 123, 125; R. Kelsey, *Descr. of Sewers*, p. 95; W. Herbert, *Hist. of St. Michael, Crooked Lane*, p. 14.

LEADENHALL MARKET : Roman Basilica (p. 160), *Proc. Soc. Antiq.*, II Ser., VII, p. 524; *Journ. Brit. Arch. Assoc.*, XXXVIII, pp. 84, 90; *V.C.H. Lond.*, I, pp. 74, 75; *R.C.H.M. Rom. Lond.*, pp. 35, 40, 42, 127, figs. 3, 4, 5, 6, 7, pl. 5.

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MORTLAKE, THAMES at : Neolithic bowl (p. 81), *Arch.*, LXII, p. 340, pl. XXXVII, fig. 3 ; *Brit. Mus. Stone Age Guide*, 3rd ed., p. 97. [British Museum.]

Early Bronze Age beaker (p. 87), *Arch.*, LXII, p. 340. [British Museum.]

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PUTNEY, THAMES at : Neolithic pottery cup, p. 82.

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Early Iron Age 'axle-end' (p. 129), *Brit. Mus. Early Iron Age Guide*, 2nd ed., p. 147, fig. 171.

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Roman sword and scabbard (p. 213), *Arch.*, LXIX, pp. 25, 26, fig. 25 ; *Brit. Mus. Guide Rom. Brit.*, p. 80, fig. 101.

RICHMOND, THAMES at : Neolithic flint implements, p. 74.

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Early Iron Age dagger and sheath (p. 125), *Brit. Mus. Early Iron Age Guide*, 2nd ed., p. 110.

SHEPPERTON : Saxon cemetery (p. 227), *Proc. Soc. Antiq.*, II Ser., IV, p. 118 ; *Arch. Journ.*, XXV, p. 171 ; Baldwin Brown, *Arts in Early England*, pp. 177, 219, 634, 635.

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Exceptional Neolithic flint (p. 78), *Arch.*, LXIX, p. 3, fig. 3. [Layton Coll.]

STAINES : Bronze founder's hoard (p. 111). [London Museum.]

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STANMORE : Earthworks of uncertain period (p. 273). See also Brockley Hill.

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Viking battle-axe (p. 259), R. E. M. Wheeler, *Lond. and the Vikings*, p. 26, fig. 9, No. 1.

SULLONIACAE, site of, see **BROCKLEY HILL.**

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Hoard of flint axes (p. 72), *Proc. Soc. Antiq.*, II Ser., X, p. 34.

TOTTENHAM, LOCKWOOD RESERVOIR : Viking ship (p. 249), Essex Nat., XII, pp. 7, 151, pl. III. [Relics in Epping Forest Museum, Chingford.]
Ancient dug-out canoe (p. 281), *Essex Nat.*, XII, p. 163 ; *Antiq. Journ.*, VI, p. 136, fig. 7. [British Museum.]

TWICKENHAM : Saxon burial, locality now uncertain (p. 230), *Proc. Soc. Antiq.*, XXIV, p. 327 ; Baldwin Brown, *Arts in Early England*, p. 311, pl. LIII, fig. 8 ; p. 633 ; *Brit. Mus. Anglo-Saxon Guide*, p. 62, fig. 69.
Bronze Age antiquities, see Index.
Early English coins (p. 139), *Arch.*, LXIX, p. 18. [Layton Coll.]

UXBRIDGE : Flint implements from working-floor of uncertain period (p. 44), *Proc. Geol. Assoc.*, XVIII, 1903, p. 188 ; *Brit. Mus. Stone Age Guide*, 3rd ed., p. 68. [Private coll.]

WALTON, THAMES at : Exceptionally massive stone axe-hammer, p. 76.

WANDSWORTH, THAMES at : Early Iron Age daggers and sheaths (p. 125), *Proc. Soc. Antiq.*, XXV, p. 58 ; *Arch. Journ.*, X, p. 259 ; Kemble and Franks, *Hor. Fer.*, pl. XVII ; *Brit. Mus. Iron Age Guide*, 2nd ed., p. 110, figs. 119, 120.
Early Iron Age shield-centres (p. 119), Kemble and Franks, *Hor. Fer.*, pl. XVI ; *Brit. Mus. Iron Age Guide*, 2nd ed., p. 106.
Viking sword (p. 256), *Proc. Soc. Antiq.*, XXI, p. 147 ; R. E. M. Wheeler, *London and the Vikings*, p. 37, fig. 16, No. 6 ; G. F. Laking, *Europ. Arms and Armour*, I, fig. 15. [London Museum.] See also Index.

WEST DRAYTON : Palaeolithic flint implements (p. 56), *Proc. P.S.E.A.*, V, Pt. III, p. 297. See also Index.

APPENDIX

MUSEUMS, PUBLIC COLLECTIONS AND THOSE ACCESSIBLE ON APPLICATION CONTAINING ANTIQUITIES FROM LONDON AND MIDDLESEX

LONDON

British Museum. Antiquities of all periods. Note especially the Palaeolithic hand-axe discovered at Gray's Inn in the seventeenth century; neolithic picks and axes, and neolithic pottery bowl from the Thames; swords, rapiers, daggers and spears of the Bronze Age, cinerary urns from Ashford, beakers from Mortlake; the Battersea shield, helmet from Waterloo Bridge, La Tène swords, daggers and scabbards from the Thames; and a magnificent collection of Roman, Saxon and Viking objects, Roman tessellated pavements, stone sarcophagus and architectural fragments. Sturge Collection of flint implements exhibited in basement, and may be seen on application to the Keeper: contains a splendid series of Palaeolithic implements from the London area and Middlesex.

London Museum. A very fine collection of objects from London and the Thames—from Staines to Erith. Note palaeolithic hand-axes from Piccadilly; neolithic polished axes; group of Bronze Age objects from Syon Reach, celts, weapons and pottery from various parts of the Thames; La Tène swords, daggers and pottery, early British coins; Roman sculptures from the Walbrook, burial-groups and other Roman antiquities; Saxon spear-heads and knives, Viking axes, etc.; human skulls from the Thames, period mostly uncertain.

Guildhall Museum. Chiefly notable for the large collection of Roman antiquities from the site of Londinium, but has also an extremely interesting Saxon and Viking series. Pre-Roman periods not well represented. Note especially the

famous Viking gravestone from St. Paul's Churchyard, the Roman tessellated pavement from Bucklersbury, and Roman architectural and monumental remains.

British Museum (Natural History), South Kensington. A few palaeolithic implements, but none of special interest. Two human skulls from the Thames at Kew.

Victoria and Albert Museum, South Kensington. Has the greater part of the Chaffers Collection of Roman and Romano-British pottery, mostly from the site of Londinium (see also Bethnal Green Museum) ; bone comb of the Viking period, and a silver finger-ring of Anglo-Saxon type from the Thames at Chelsea.

Bethnal Green Museum. Collection of Roman pottery transferred from Museum of Practical Geology, including a part of the Chaffers Collection. Note Arretine cup or bowl with potter's stamp, early Graufesenque types, Upchurch and Castor ware pots, cinerary urns and other pieces from the site of Londinium, showing a good series of potter's stamps. In the basement is a plain stone coffin of the Roman period, found in Springfield Lane, Upper Clapton, in 1814 (not exhibited).

Museum of Practical Geology. A few flint implements ; none of special interest.

Royal Exchange. Roman pottery and other antiquities from Londinium.

Goldsmiths' Hall. Roman altar to Diana, found on the site of the Hall.

Phoenix Assurance Company's Offices. Roman antiquities, including fine Samian bowl, and fragment of decorated bowl of pre-Claudian date, from the site of Londinium.

London Commercial Sale Rooms, Mincing Lane. Roman antiquities.

Guardian Assurance Company's Offices. Roman pottery, &c., including early pottery fragments.

St. Paul's Cathedral Library. Roman pottery, &c.

University College, Gower Street. The ' London skull ' or ' Lloyd's skull '—incomparably the oldest relic of humanity from London, and probably one of the most ancient ever discovered in Britain : may be earlier than *Homo sapiens.* Not accessible to the public : apply to Institute of Anatomy, University College.

Royal College of Surgeons of England. Romano-British skulls from London, and others of uncertain date from all

parts of the river Thames. Not open to the public : apply to Curator.

St. Bartholomew's Hospital. Two plain stone coffins of Roman date, found on the site of the Medical School.

Horniman's Museum, Forest Hill. A few palaeolithic implements, including one or two good pieces. Fine bronze celt with portion of haft from Horseferry Road.

Society of Antiquaries. Series of early Samian and other wares from Roman London, collected by J. E. Price. Objects of neolithic and Bronze Age date, including some fine swords and rapiers from the Thames, collected by Dr. W. Roots. Not open to the public : apply to Secretary.

BRENTFORD

Public Library, Layton Collection. Contains a remarkably fine series of objects from the Thames, and is in some respects the most important collection of these objects outside the British Museum. Note specially good example of ' Thames pick ', and numerous polished axes ; magnificent group of Bronze Age swords, rapiers, daggers and spear-heads ; small cased bucket of La Tène date, ' axle-end ' with decoration, daggers and sheaths, and early British coins. Has also a good series of pottery vessels, mostly of La Tène date, though variously labelled, but including three beakers and fragment of ' food-vessel '. A few Romano-British, Saxon and Viking antiquities. See also Crooke Collection of palaeolithic implements from Middlesex. Open at Library hours, free.

ACTON

Gunnersbury House. Sadler Collection of flint implements, including many fine local specimens. Series of early British tin coins from Gunnersbury Lane. Open free.

TWICKENHAM

York House. Fossil remains of Pleistocene fauna from Thames gravel pits. Palaeolithic and neolithic flint implements, Bronze Age spear-heads, and other antiquities from the Thames.

RICHMOND

Public Library. Palaeolithic and other flint implements.

CHINGFORD

Epping Forest Museum. Timbers from Viking ship (Lockwood Reservoir) and other antiquities from the Lea valley.

GUILDFORD

Castle Arch Museum. Relics from the Saxon cemetery at Shepperton.

OXFORD

Ashmolean Museum. Roman tombstone from Ludgate Hill, with figure of the legionary soldier Vivius Marcianus. Bronze Age implements from collection of Sir John Evans.

CAMBRIDGE

Museum of Archaeology and Ethnology. Romano-British pottery, &c., from London.

YORK

York Museum. Two Roman pewter ingots from the Thames at Battersea with the Syagrius stamp—Christian monogram.

EDINBURGH

Royal Scottish Museum. Neolithic pottery bowl from the Thames at or near Putney.

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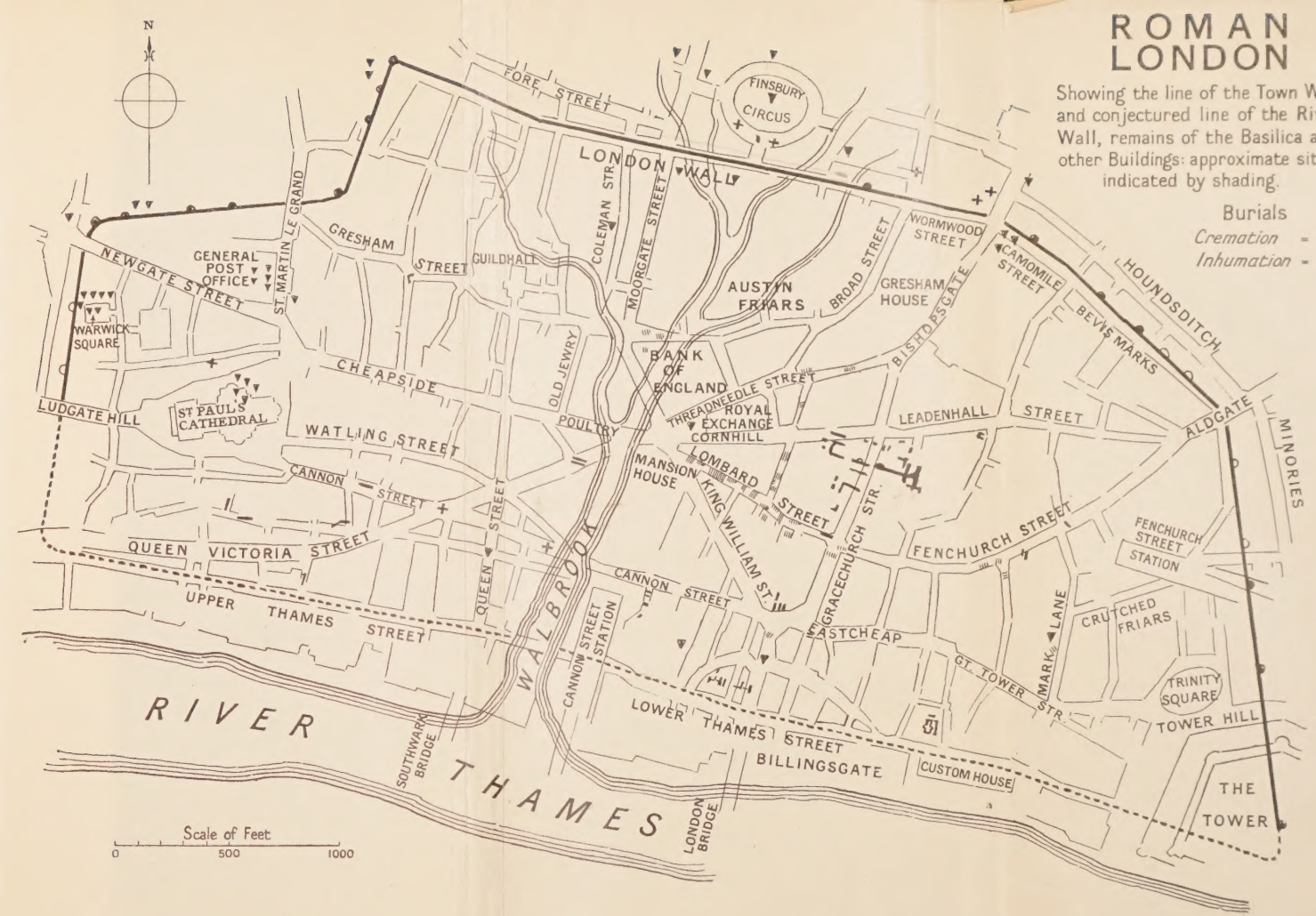
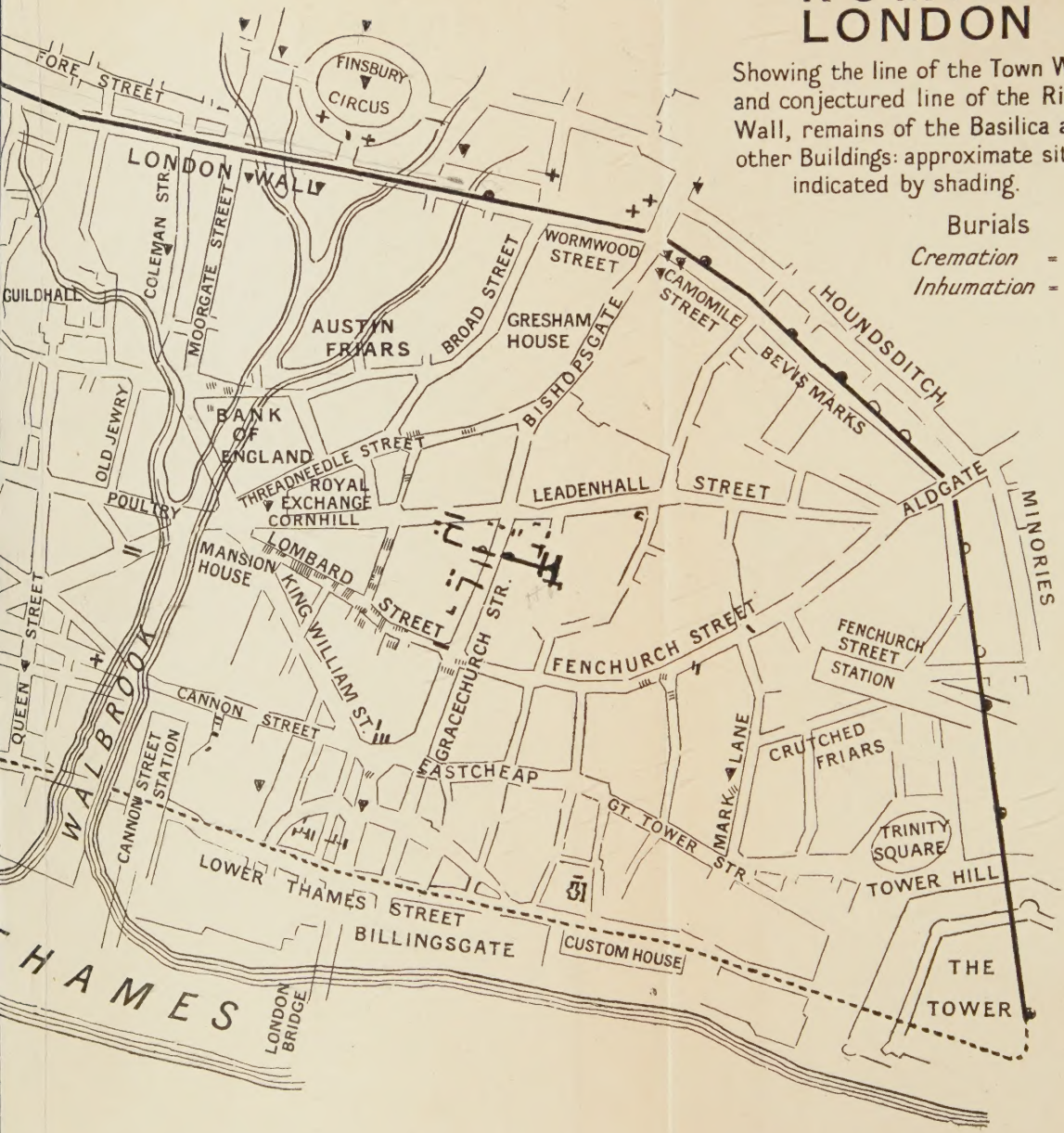

ROMAN LONDON
Showing the line of the Town Wall and conjectured line of the River Wall, remains of the Basilica and other Buildings: approximate sites indicated by shading.
Burials
Cremation - ▼
Inhumation - +
N
FORE STREET
FINSBURY CIRCUS
LONDON WALL
COLEMAN STR.
MOORGATE STREET
WORMWOOD STREET
CAMOMILE STREET
HOUNDSDITCH
BEVIS MARKS
ALDGATE
MINORIES
BISHOPSGATE
BROAD STREET
GRESHAM HOUSE
AUSTIN FRIARS
GRESHAM STREET
GUILDHALL
ST MARTIN LE GRAND
GENERAL POST OFFICE
NEWGATE STREET
WARWICK SQUARE
CHEAPSIDE
OLD JEWRY
"BANK OF ENGLAND"
THREADNEEDLE STREET
ROYAL EXCHANGE
CORNHILL
LEADENHALL STREET
LUDGATE HILL
ST PAUL'S CATHEDRAL
WATLING STREET
POULTRY
MANSION HOUSE
OMBARD STREET
KING WILLIAM ST.
GRACECHURCH STR.
FENCHURCH STREET
FENCHURCH STREET STATION
CANNON STREET
QUEEN VICTORIA STREET
QUEEN STREET
WALBROOK
CANNON STREET STATION
EASTCHEAP
MARK LANE
CRUTCHED FRIARS
UPPER THAMES STREET
GT. TOWER STR.
TRINITY SQUARE
TOWER HILL
LOWER THAMES STREET
BILLINGSGATE
CUSTOM HOUSE
THE TOWER
RIVER THAMES
SOUTHWARK BRIDGE
LONDON BRIDGE
Scale of Feet
0
500
1000

ROMAN LONDON

Showing the line of the Town Wall and conjectured line of the River Wall, remains of the Basilica and other Buildings: approximate sites indicated by shading.

Burials

Cremation = ▼

Inhumation = +